Published every Saturday by the Simmons-Boardman Publishing Corporation, 1309 Noble Street, Philadelphia, Pa., with editorial and executive offices: 30 Church Street, New York, N. Y., and 105 West Adams Street, Chicago, Ill.

Subscriptions, including 52 regular weekly issues, and special daily editions published from time to time in New York, or in places other than New York, payable in advance and postage free. United States, U. S. possessions and Canada: 1 year, $6.00; 2 years, $10.00; foreign countries, not including daily editions: 1 year, $8.00; 2 years, $14.00.

Single copies, 25 cents each.

H. E. McCandless, Circulation Manager, 30 Church St., New York, N. Y.

Railway Age

With which are incorporated the Railway Review, the Railroad Gazette and the Railway Age-Gazette. Name registered U. S. Patent Office.

Vol. 106 May 20, 1939 No. 20

In This Issue

The Railway Age is indexed by the Industrial Arts Index and also by the Engineering Index Service

"THE BEST MONEY-SAVING DEVICE A RAILROAD CAN INSTALL"—

A study of 33 automatic interlocking installations shows an average saving of 68.4 per cent, varying between 23.6 per cent to over 200 per cent. This type of installation is one of the best money-saving devices a railroad can install.

Now, when further savings in operating expenses are so desirable, they can be realized at locations where railroads cross at grades, even with a minimum of traffic, by installation of "UNION" Automatic Interlockings.

1634

UNION SWITCH & SIGNAL COMPANY
SWISSVALE, PENNA.

NEW YORK CHICAGO ST. LOUIS SAN FRANCISCO

RAILWAY AGE

How to Ruin a Nation

After the annual meeting of the Chamber of Commerce of the United States, Secretary of Commerce Harry L. Hopkins in an interview criticized those who had participated for spreading "gloom." He implied that all that is necessary to recovery is for business to go ahead increasing investment and employment with confidence and courage.

This sounds like the criticisms of the railways for "complaining" often made by spokesmen of other business interests, and their implication that railway management could soon solve the railroad problem by going ahead and "doing its stuff" like the self-reliant, courageous and efficient managements of other industries. What Mr. Hopkins and other New Dealers, like these critics of railway management, do not know or disregard is that every industry, and business as a whole, are subject to unalterable economic laws, and that neither any single industry, nor business as a whole, can go ahead if subjected to unsound economic policies. They may be policies of government, or business, or labor, or all of them; but if sufficiently important and unsound they will inevitably prevent any industry, or business as a whole, from prospering.

New Dealers Talk Like Business Men

The railroads have for years been subjected to such policies, and to this is principally due their present condition. Business as a whole has been subjected to such policies for a shorter time, especially under the New Deal; and this is principally responsible for its failure to recover and its present condition. But the New Dealers, in telling business to go ahead, evade or ignore the continuing effects of the government economic policies for which they are responsible and still support. And likewise the part of Big Business that dominates the Chamber of Commerce of the United States evades or ignores the continuing and increasing effects of the government transportation policies for which it is principally responsible when it virtually or actually tells railroad management that, if it would only try, it could get along all right under policies such as these same Big Business interests claim, and rightly, are ruinous to business in general. It is hard to decide whether the New Dealers or this part of Big Business show the greater ignorance and stupidity. The New Dealers at least have the advantage of being less selfish and more honest.

Unsound Policies More Ruinous Than War

Unsound economic policies have ruined more nations than war. We are giving the best exemplification in all history of how to ruin a nation by such policies. The Great Depression was caused mainly by such post-war policies both here and abroad—partly policies of government, partly of business; and mainly by policies of our government it has been protracted more in the United States than in any other leading country. Statistics from every part of the world demonstrate that recovery began everywhere in the latter part of 1932. They also demonstrate that from 1933 to 1937 it proceeded more slowly in the United States than almost anywhere else, and that since the middle of 1937 this country has suffered more from "recession" than any other. Statistics of the League of Nations show that in March, April and May, 1937, at the peak of our "recovery," industrial production in the United States was only 99 per cent as large as in 1929, while in Italy it was 103 per cent; in Germany, 116 per cent; in Great Britain, 125 per cent; in Norway, 126 per cent; in Chile, 130 per cent; in Sweden, 146 per cent. The only leading country that lagged worse than the United States was France—in which a Socialist government adopted policies similar to those of our New Deal. In July, 1937, when our "recession" was just beginning, employment in this country was only 97 per cent as large as in 1929, while in Italy it was 106 per cent; in Germany, 108 per cent, and in Great Britain, 114 per cent.

In the entire year 1938, because the "recession" was much worse here than elsewhere, industrial production in the United States was the smallest, compared with 1929, in any of 17 countries in all parts of the world for which figures have been given by the League of Nations. In the United States it was only 72 per cent as large as in 1929, while in France it was 77 per cent as large; in Canada, 90 per cent; in Italy, 99 per cent; in Great Britain, 116 per cent; in Poland, 117 per cent; in Germany, 126 per cent; in Norway, 127 per cent; in Chile, 137 per cent; in Sweden, 146 per cent, and in Japan, 171 per cent. An increase of production occurred in this country during the last two-thirds of 1938; but another decline began in January from which there has as yet been no recovery.

What Has Happened to Our National Income

The New Dealers say we must continue huge government spending until the national income is increased to 80 billion dollars a year. We recovered from previous depressions without such spending; and there is no evidence whatever that it has contributed toward recovery from this one. Quite the contrary. The New Dealers got their "spending for recovery" well started in the latter part of 1933, and have done such

a job of it since as the world never saw before or elsewhere. National income per capita is the true measure of the well-being and progress of a nation. The only reliable estimates of past and current national income in this country are those of the National Bureau of Economic Research. The estimates of the New Deal Department of Commerce are being inflated by the inclusion of money taken by the government from the really producing taxpayers and paid or given by it to largely unproductive workers and persons on relief.

Statistics of the National Bureau of Economic Research show that our national income reached a maximum of almost 84 billion dollars, or $688 per capita, in 1929. Because of the subsequent increase in population, a total of 80 billions—the present goal of the New Deal—would have been in 1938 only $611 per capita which would not have been recovery. We will not have had recovery until national income *per capita* has become as large as in 1929. In 1938 it was only $407 per capita. Therefore, it would require an increase per capita of almost 70 per cent to restore it to what it was in 1929.

But some say that comparisons with 1929 are unfair because it was a year of speculative mania. Let us then compare the figures of national income during the last five years of New Deal rule, 1934-1938, inclusive, with those of the preceding fifteen years for which statistics of the National Bureau of Economic Research are available. What do they show as regards the nation's success in increasing its income before and under the New Deal?

National Income for Twenty Years

The five years ending with 1923 included the sharp but short depression of 1921-1922; but average income per capita during that period was 34 per cent larger than during the last five years. The ten years ending with 1928 included a period which has been criticised by New Dealers as one of general mismanagement of the system of private enterprise. But income per capita in the entire decade averaged $625, or almost 42 per cent more than during the last five years of "reform" and "spending for recovery." The five years ending with 1933 included the worst two years of the depression; and yet even in that five years income per capita averaged 7 per cent more than during the last five years. And in 1938, after five years of "reform" and "spending for recovery," average income per capita was still 40 per cent less than ten years before in 1928, and 30 per cent less than nineteen years before in 1919.

National Income For Twenty Years—Five-Year Averages

	Total National Income	Per Capita
Five years ending 1923	$64,225,000,000	$593
" " " 1928	76,682,000,000	658
" " " 1933	58,327,000,000	471
" " " 1938	56,616,000,000	441

Is it surprising, in view of such facts, that Secretary Hopkins found those who attended the Chamber of Commerce meeting "gloomy"? What seems inexplicable is that he criticized their "gloom," and implied they should be cheerful—while at the same time indicating that he and other New Dealers favor continuing the same kind of government economic policies that have prevailed for six years. And yet—why should railroad men or the *Railway Age* be surprised by what Secretary Hopkins said, in view of the fact that he talked about general business and government policies affecting it in exactly the same way that so many business men talk about the railroads and government policies affecting them? They, like him, when they believe it will serve their own purposes, simply refuse to admit the relationship between economic causes and their inevitable economic effects.

Great Britain Leaves United States Behind

This general ignorance or disregard of the fact—demonstrated by the unbroken economic experience of the world and the deductions of all reputable economists from it—that certain economic causes inevitably will produce certain economic effects is solely responsible for the failure of recovery in this country and its present condition. There is a startling contrast between what has occurred in Great Britain and in the United States. In 1929 average income per capita in the United States was 57 per cent larger than in Great Britain. At the bottom of the depression in 1932 it was still 46 per cent larger. But by 1937 there had occurred so much more recovery in Great Britain than in the United States that income per capita in the two countries had become *about the same;* and in 1938 income per capita in this country was actually *less* than in Great Britain. Different causes simply produced different effects. Government and business joined in Great Britain in promoting recovery by means experience had shown would cause it. Government in the United States forced upon business policies which all experience and sane reasoning indicated would hinder or prevent it; and they have prevented it.

Residential Construction and Railroad Buying

It repeatedly has been said that the three great industries whose complete recovery is most essential to recovery in general are residential construction, railroads and public utilities. The government has been really promoting revival of residential construction. It has also been doing about all it could to prevent recovery of the railroads. In consequence, there has been this year a striking contrast between residential construction and railroad buying from the manufacturing industry. In the first quarter of 1937 contracts for residential construction amounted to 255 million dollars, or 49 per cent as much as in the first quarter of 1929; and railroad buying of equipment and materials amounted to 277 million dollars, or 71 per cent as much

as in the first quarter of 1929. Following the effects of the "recession" upon it in 1938 there has been a large increase in contracts for residential construction. They amounted in the first quarter of 1939 to 327 million dollars, or 64 per cent as much as in the first quarter of 1929; and yet general business has continued worse than in 1937.

Why? The answer is partly afforded by the fact that railroad buying of equipment and materials in the first quarter of 1939 was only 140 million dollars, or but 36 per cent as large as in the first quarter of 1929. The figures for both residential construction and railroad buying totaled 532 million dollars in the first quarter of 1937 and only 467 million dollars in the first quarter of 1939. Thus, the decline of railroad buying made the total 65 million dollars less than in the first quarter of 1937, and by that margin more than nullified the favorable effect of the increase of residential construction upon general business.

And the "Ill-Fed, Ill-Clothed and Ill-Housed" Suffer Most

The economic policies that have prevailed in this country for years, and especially during the last six years, have curtailed the national income by many billions of dollars annually—probably by an aggregate of at least 100 billion dollars in the last five years, because it actually was 100 billion dollars more in the five years ending with 1928 than in the five years ending with 1938; and never before in history did the nation fail in any period of five years after the bottom of a depression was passed to increase its income to much more than it ever was in any previous five-year period.

The problems of recovery in general, like the railroad problem in particular, could soon be solved by the adoption by government, business and labor of policies which all human experience and every standard work on economics show should be adopted. But the nation, including many of its business men, persists in acting as if it is utterly ignorant of economics or utterly mad. And hence we continue to lag behind virtually all the nations we have been taught to despise as less economically intelligent and efficient than ourselves. And the worst sufferers from the consequences are the "one-third who are ill-fed, ill-clothed and ill-housed" in whose especial interest it is claimed the policies of "reform" and "spending for recovery" have been followed.

What Will the Traffic Bear?— 14

The movement of merchandise traffic between Chicago, Ill., and Clinton, Iowa, is very largely from Chicago to Clinton. Quite naturally the trucks don't want to return to Chicago empty, so they make a rate of 25 cents on butter from Clinton to Chicago, minimum weight 10,000 lb., which the railroads were handling at 34 cents, minimum 20,000 lb. If the trucks were compelled to base their rates on their average costs, the rate on butter would become 39 cents and the trucks would have to go out of the butter business.

How can the trucks afford to handle this traffic at less than cost? They solicit only high rated merchandise traffic from Chicago to Clinton. (If you don't believe this, just take a trip through Chicago's truck terminals.) The railroads' outmoded rate structure permits the trucks to earn $140 on the outbound trip which, plus butter revenue on the return trip, gives a total revenue of $165 for a trip which costs $100 to make.

If the railroads would base their merchandise rates upon average revenue derived from their March 27, 1938, level of rates and the trucks were required to quit handling butter at less than cost, as they should be—then trucks could earn only $86 for their round-trip between Chicago and Clinton, which would be several dollars less than their average costs of operation.

If railroad rates were thus made, the trucks would have to get return loads at rates in excess of their average operating costs, or they could not stay in business. That is, the margin of profit on outbound truck loads would be so reduced that a below-cost return load would not be sufficient to put the round-trip in the black.

Now, there are very few places in the country where traffic averaging third class is available in both directions. Third class in one direction only won't give a truck enough velvet to allow it to bid for a return haul at below cost. Hence, **railroad rates at the third class average would put a large proportion of trucks out of business for both the outbound and inbound hauls.**

Probably 50 per cent of present trucking is involved in this uneconomic competition with the railroads. The railroads can put a stop to this growing competition by revising their competitive rates to a sound cost basis, and insisting that their competitors be required to do the same.

Designing New Passenger Cars*

A discussion of problems involved in developing designs best adapted to meet modern requirements

By K. F. Nystrom

Mechanical Assistant to Chief Operating Officer, Chicago, Milwaukee, St. Paul & Pacific

CONDITIONS in the past few years have been changing rapidly, and new materials and devices are being introduced at an ever-increasing rate. If one stops for a few moments to analyze the rapid progress, particularly in the railroad field, one is forced to the conclusion that few persons, if any, are solely responsible for any outstanding discovery or improvement. On the contrary, someone had the original idea, however crude, as a foundation, and someone else developed the idea, so the old proverb is literally true—"One sows and another reaps." The success of America, particularly in the industrial field, is due to the opportunities we have to express our convictions without interference, and thus make our own contributions, however small, to progress in the field which we are particularly interested in, namely, the railroads.

At the present time, however, there is a danger of brushing aside things which have been proved in the past to be good and fundamental, and seeking to adopt new, and in many cases, untried ideas, without need or justification. The great secret which we apparently have not yet learned is to try all things and keep only that which is good. This trying or testing process, if narrowed down to our particular railroad field, and still more specifically to passenger train cars, is very comprehensive and far-reaching. The proper selection and coordination of details is almost a bewildering task because of the many new materials and devices available. The selection of trucks, metal for car bodies, wheels, bearings, springs, floor, insulation, heating system, lighting, air-conditioning and many other details too numerous to mention, requires very careful consideration, and each of the details mentioned would be of sufficient importance for an individual treatise; therefore, we will confine ourselves at this time to only a few of the vexing problems which confront a railroad or car builder when selecting a design for new cars.

Truck Characteristics and Tests

It is reasonably safe to say that of the various types of cars produced in this country in the last ten years for different railroads, there have not been two trucks alike.

For the past five years the Milwaukee has carried on a series of tests of various types of passenger-car trucks. For test purposes, vestibule steps were removed from cars tested and observation boxes with shatter-proof windows in front and rear were installed. The bottom of this observation box was within 14 in. of the rail, providing a clear vision for observers to study the behavior of trucks and component parts, and in some cases moving pictures were taken for subsequent studies and for permanent record. The observation box is shown in Fig. 1.

During this period nine different types of new trucks were built and tested with more than 50 different combinations of various details and spring arrangements. All of the trucks built were of more or less conventional design of the four-wheel type having equalizers and bolster springs, with the exception of three designs which will be described later.

After preliminary tests, the trucks were placed under a car in regular fast passenger-train service between Milwaukee, Wis., and Chicago, a distance of 85 miles, and between Milwaukee and Madison, Wis.; over 46 miles of good main-line track, Milwaukee to Watertown, Wis., and 37 miles of branch-line track from Watertown to Madison, Wis.

Recording instruments registered vertical and lateral oscillations, and permanent records were made of each test. Figs. 2 and 3 show typical self-recording diagrams of a good- and of a poor-riding car, respectively. The

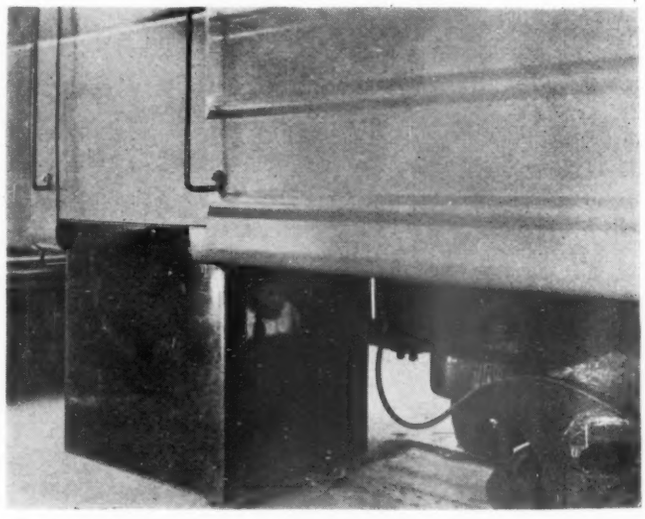


Fig. 1—Observation Box Installed on a Milwaukee Passenger Car to Permit Studying Truck Action

two inner lines in Figs. 2 and 3 indicate the lateral movement of the car body and the outer lines show the vertical and longitudinal disturbances. A sound meter was also used to record the sound or noise level in the car.

The six-wheel truck up to about ten years ago was generally accepted as standard and in many respects was satisfactory, but because of its heavy weight, railroads and car designers were forced to abandon this type and adopt a four-wheel truck. It is generally believed that the good riding qualities of a six-wheel truck are due to the long wheelbase.

In order to determine the value of a long wheelbase

* Abstract of an address presented at the monthly meeting of the Northwest Carmen's Association, held May 1, 1939, at St. Paul, Minn.

truck, a series of tests were run with a conventional six-wheel truck, having its wheels turned concentric within ten thousandths of an inch and giving satisfactory riding conditions. The center pair of wheels was removed and long equalizers applied extending between the outside boxes, making a four-wheel truck with 11-ft. wheelbase. Its performance was not nearly as good as the original six-wheel truck or the shorter-wheelbase four-wheel truck.

We experimented further and applied the same type of springs in an 8-ft. wheelbase conventional four-wheel

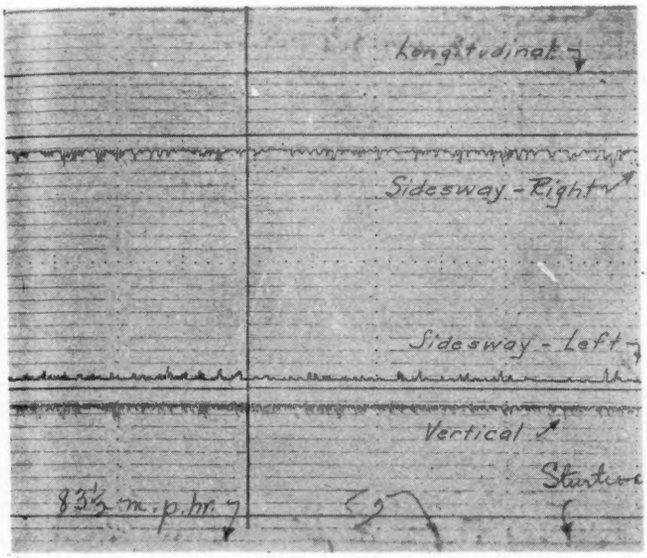


Fig. 2—Section of Recording Tape Showing Minimum Vertical and Lateral Oscillations in a Good-Riding Car

truck and obtained the same riding condition, proving, or at least indicating, that a long or a short wheelbase is not a factor for a good riding truck or car. A truck, illustrated and described in the *Railway Age* of May 11, 1935, was used under 75 cars built in 1934, and has proven reasonably satisfactory. In 1936 some improvements were made, particularly in simplifying the truck, improving the brake, applying longer elliptic springs, and some other minor improvements.

In 1935, not being entirely satisfied with the conventional trucks, we began, with the General Steel Castings Corporation, developing what we termed the knee-action truck, which is shown in Fig. 4. You will note these trucks differ from the conventional truck in the suspension of the swing hangers on coil springs, and the use of coil-spring supports with the semi-elliptic springs over the journal boxes, which give this truck the knee-action effect. This truck was tested with various combinations of spring arrangements, including rubber springs as well as wood fillers. It was, however, found to be unsatisfactory with any of the combinations of suspension which were tried in the tests, due to the fact that the stability of the truck was not as good as the usual type; it was sensitive to unevenness in track and, with all spring combinations, it had the tendency to gallop and lean too much on curves. The principal objection to this knee-action truck from the standpoint of riding quality was that we were not able to eliminate a rather violent vertical vibration at a speed of 55 to 65 m. p. h. Below and above this critical speed the car rode remarkably well.

In Europe, the so-called "Gorlitz" truck has given rather satisfactory performance and, again with the cooperation of the General Steel Castings Corporation, a Gorlitz truck was built and tested as shown in Fig. 5. In this truck practically every conceivable combination of spring arrangement was tested, including rubber springs, but no definite improvement over the knee-action truck could be realized due to serious vertical vibration which could not be eliminated with the use of numerous spring combinations. Another disadvantage of the Gorlitz truck was the long wheelbase which naturally increased the weight. In this respect the knee-action truck had promised considerable saving in weight. Another economic disadvantage of both the knee-action truck and the Gorlitz truck is the high cost of the elliptic springs, particularly for the Gorlitz truck.

At this point, we started to observe the changes made in the automotive industry by some manufacturers substituting coil springs for elliptic springs; therefore a series of tests were made with coil springs instead of the conventional bolster elliptic springs, and we found that with the same characteristics, that is, the same load and deflection, a well-made and well-lubricated elliptic spring and a coil spring produced identical results as far as riding qualities are concerned, with the exception that the vertical movement of the coil springs had to be controlled because of the lack of friction.

We began to work on the theory that the only factor in good riding was the total spring deflection, a deflection considerably greater than heretofore used. By eliminating the elliptic springs, the unknown friction was eliminated and the vertical movement could be controlled by hydraulic shock absorbers of a constant known resistance.

The truck applied to the 1938 cars, shown in Fig. 6,

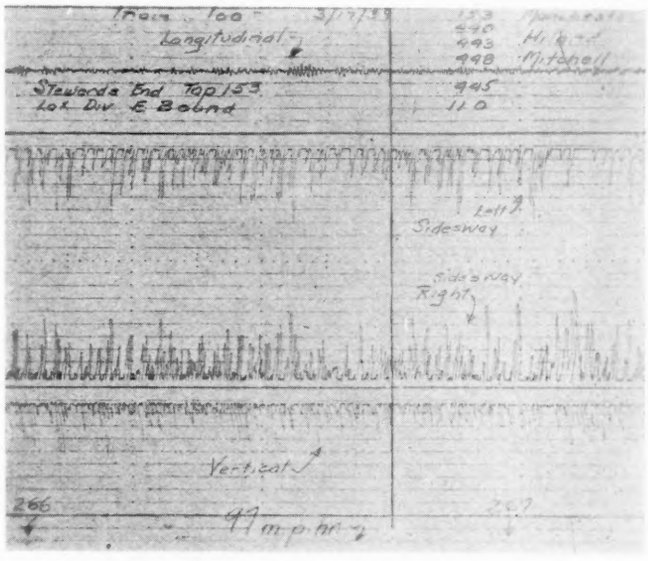


Fig. 3—Section of Recording Tape Which Indicates Excessive Oscillations in a Poor-Riding Car

illustrates the developments up to the early part of 1938 where a large 13¾-in. diameter triple-coil spring is employed as a bolster spring having a free height of 23¾ in. and a normal working height of 13½ in. This spring, you will note, has a total deflection of 10½ in., as compared with 7½ in. for the conventional elliptic spring. The vertical action is controlled by hydraulic shock absorbers and levelizing bars. The bolster is guided by bolster drawbars. This truck was originally designed to use coil springs directly over the journal boxes, but we were unable to eliminate an undesirable vertical vibration with this arrangement. In addition,

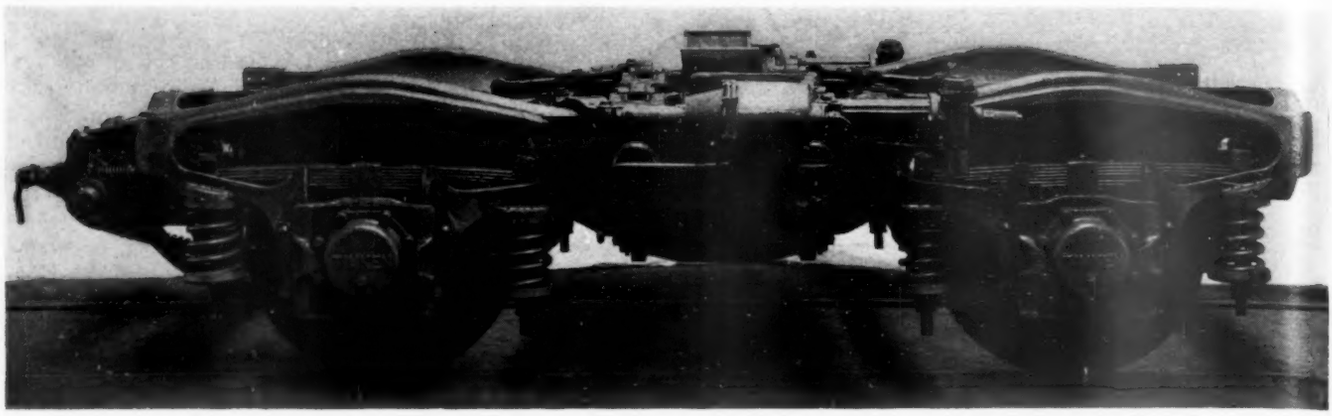


Fig. 4—A Knee-Action Truck Which Was Tested with Various Combinations of Spring Arrangements in 1935

the truck frame developed considerable loping. Before introducing equalizers, here again a number of combinations of different types of springs and rubber pads were tested out.

We feel that some progress has been made by these tests, and probably some fundamental data have been established; however, we feel that we have by no means reached the ultimate goal and it is rather certain that better performance and further reduction in weight can be attained. It is my vision that the future truck will be considerably lighter than anything we have conceived up to the present time, will have inboard bearings, chromium-plated hub caps, dynamically balanced wheels, modified automotive-type brakes, hydraulic snubbers, equalizing or levelizing bars, will be completely enclosed, and will provide a safe and comfortable ride at cruising speeds in excess of 100 m. p. h.

After attaining a reasonably satisfactory truck design, maintenance is of major importance. Excessive wear cannot be tolerated either from a smooth-riding standpoint or from a safety standpoint. We have found by test that excessive longitudinal clearance between boxes and pedestal will cause the truck to have bad lateral oscillation. It is my opinion that the next necessary step for promoting a good-riding truck is to grind all wheels to insure that they are truly concentric and properly mated to be of equal circumference on the same axle.

We have not yet departed from the standard A. A. R. contour for wheels which have a 1 in 20 taper of the tread. Our tests, however, have shown that the contour does have a definite effect. For example, on some test cars after about 30,000 miles of service, the trucks developed a tendency to lateral oscillation, which was sufficient to cause a noticeable lateral vibration in the car body. Examination of the wheels showed that they had worn in such a manner as to produce a rather steep taper at the base of the flange, but showing no appreciable flange wear. When these wheels were restored to the standard contour, the oscillation of the truck disappeared.

In an attempt to control this defect, we devised and tried a method of restraining the truck with the view toward obtaining longer period between turnings of the wheels, and when testing this, we decided to use wheels worn to A. A. R. gage for hollow wear with nearly vertical flanges. To determine the efficiency of the device, we first made a trip without the device in operation. To our surprise, the truck showed no tendency whatever to oscillate laterally, the ride being in this respect equal or superior to one with newly turned wheels. In view of this experience, we are at a loss to know what the proper contour of a wheel should be.

In addition to the above experiments, however, we have also tried the straight cylindrical tread, and the modified cylindrical tread in which the cylindrical portion is 2 in., the balance of the tread being tapered, with a ⅜-in. radius at the rim. Neither of these has been entirely satisfactory. In an attempt to reduce the tendency of the wheels to develop the steep taper previously mentioned, we are now trying out a set of wheels with a groove turned at the base of the flange. These wheels have not been in service long enough to develop anything definite.

All railroads and car builders will agree on one thing, and that is that probably the most important engineering problem today is to provide a truck with satisfactory

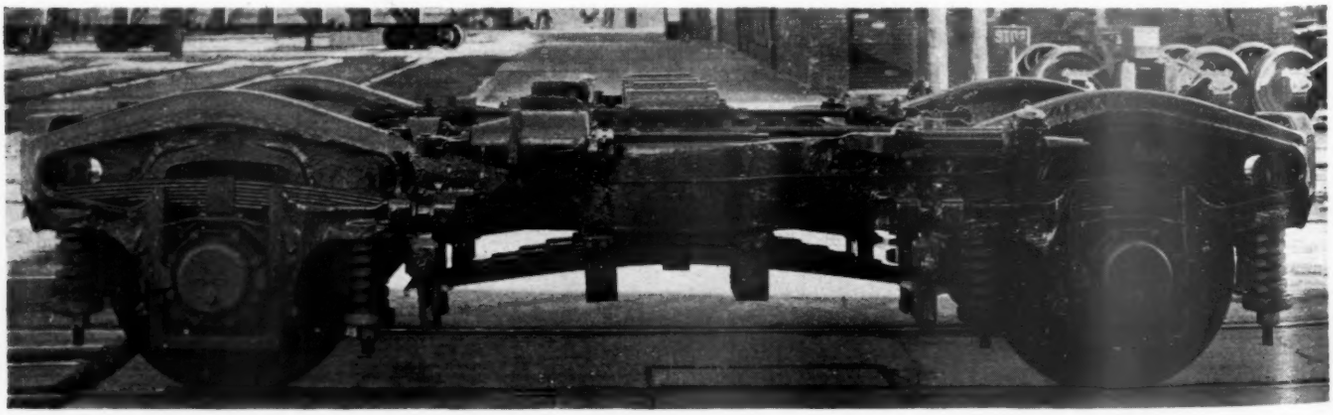


Fig. 5—"Gorlitz" Type Truck In Which It Was Difficult to Keep Vertical Oscillations Within Desired Limits

riding qualities without running into excessive weight. To me, however, there is another problem of equal importance and that is to create a car body of light weight but of strength equal to that of heavy steel cars built in the past.

As long as the heavy cars were built having heavy six-wheel trucks, the latter being secured to the car body with an efficient locking device, the weight was such that there was comparatively little danger of one end of the car raising or climbing over the floor of an adjacent car in case of an accident. In the design of passenger-train cars, it is of still greater importance to control the center of gravity as the weight decreases. The distribution of weight of the car body is closely connected with the proper location of the center of gravity. The equal distribution of weight between the two trucks, as well as transversely of the car, naturally influences the riding qualities of the vehicle.

No one would expect that a boat would be even seaworthy, let alone perform properly, if one end was considerably heavier than the other and at the same time was listing badly; however, we expect a high-speed passenger-train car to perform satisfactorily under such almost impossible conditions. One end of the car may be several thousand pounds heavier than the other end and the weight of each side badly distributed, a condition we have tolerated for many years. In Europe, in the past few years, a great deal of attention has been paid to this important subject and progress has been made. A few years ago, it was not considered very important to distribute accurately the weight between drivers and leading and trailing trucks on locomotives, but today considerable money is spent for elaborate scales by individual railroads, not to mention locomotive builders, to distribute the weight accurately according to best known practices.

Some engineers considered it a step forward when the Milwaukee adopted a comparatively shallow center sill, making it possible to place all equipment, such as battery boxes, air-conditioning units, air brake, water tanks, etc., directly underneath the center sill, thereby distributing the weight equally on both sides of the car, and making it possible to lower the center of gravity several inches by placing this heavy equipment as close to the rail as clearances permitted. Another advantage in placing the equipment directly under the center sill was that it could all be economically inclosed in a gondola, protecting it from the elements, thereby reducing maintenance costs, as well as practically eliminating the accumulation of snow and ice underneath the car in winter weather. The placing of equipment underneath the center sills and the method of inclosing it is shown in Fig. 7. Obviously, this method of suspending the equipment and housing it must reduce the air resistance offered by the conventional method of distributing such equipment indiscriminately under the car.

The next step to be taken was to balance the weight equally between the two trucks and good progress was made toward that end in the last equipment built. It was the writer's intention to counterbalance, if necessary, so that the weight distribution of future cars, both longitudinally and tranversely, would be exactly the same.

If the control of the center of gravity and the proper distribution of weight can be considered progress, it is unfortunate that a new specification for the construction of passenger train cars is to be adopted, which will definitely halt such progress. The new specification requires a low center sill, which will not permit of sufficient rail clearance for the larger items, such as battery boxes and refrigerating units, if suspended under the center sill. The refrigerating unit could probably be so rearranged to meet the new conditions, but it is difficult to conceive of a storage battery which could be so constructed as to meet them. Old proved good practice, as provided for in the Post Office department's specification for the construction of full and apartment railway post-office cars introduced in 1911, was changed because certain cars did not meet the accepted interpretation of this specification. The introduction of new requirements for center sills will add probably 2,000 to 3,000 lb. per car in weight, which, in the writer's opinion, is uncalled for as it will add to the initial cost of the equipment as well as the cost of carrying unnecessary dead weight.

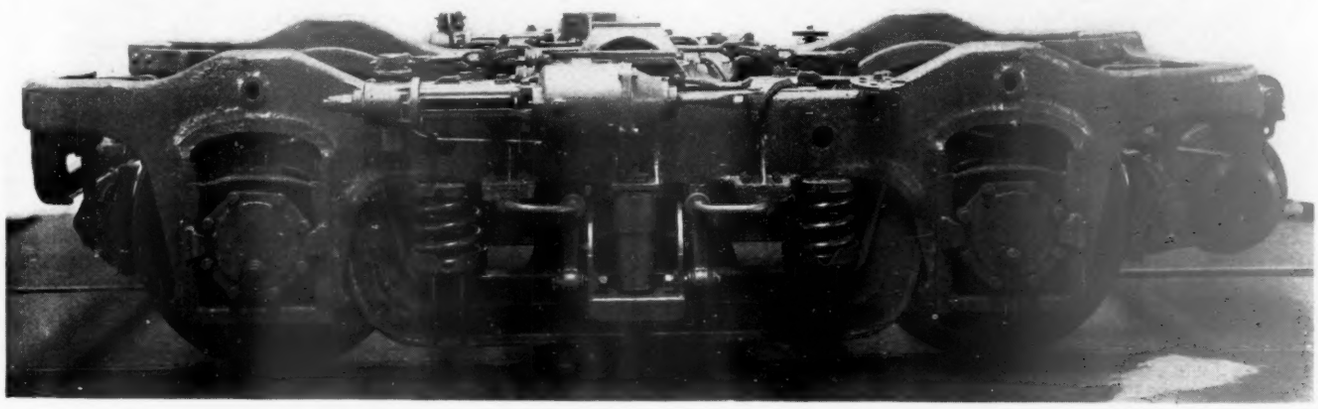


Fig. 6—The 1938 Truck, Equipped with Large Triple-Coil Bolster Springs, Shock Absorbers, Levelizing Bars, Etc.

In the Post Office Department's specification for the construction of full and apartment railway post office cars just referred to, an end load of 400,000 lb. distributed between the coupler and draft gear, and the buffer was specified as the strength requirement for center sills. The accepted general practice has been to design an underframe so that 250,000 lb. of the end load was assumed to be absorbed through the buffer, and 150,000 lb. through the draft gear and coupler. The couplers in the early steel cars were not very strong and in case of an accident, they generally failed and acted much as does a fuse in an electric circuit. In addition, the vestibules in the so-called heavy steel cars were so designed as to fail progressively in the case of a train wreck. For over a quarter of a century, it has been proved that a steel car of a typical heavy Pullman

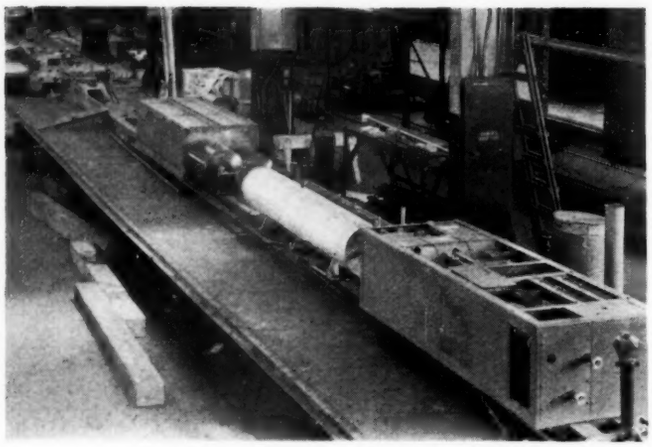


Fig. 7—Equipment Located Underneath the Center Sill Ready for Application of the Enclosure Housing

sleeping-car design was a safer place than even one's home.

The tight-lock coupler was introduced and adopted as standard before a practical application was developed. It was adopted without regard to past practices and experience and in order to apply this new device, the buffer had to be sacrificed, creating new conditions. To correct this situation, the Post Office department specification was revised as of July 20, 1938, so that it would be permissible to eliminate the buffer and absorb the entire end load of 400,000 lb. along the center line of the coupler. This revision was, in my opinion, a mistake. An attempt was made to reconcile this set-up by proposing a new specification for passenger train car construction. Instead of correcting the error made by prematurely introducing the tight-lock coupler, a specification is now proposed to bridge the two designs, that is, to have a center sill of sufficient ultimate strength to take 800,000 lb. on coupler and draft gear, and 500,000 lb. on an imaginary center line of buffer.

The newly introduced specification also calls for some additional anti-climbing requirements on the coupler and end construction, which will require a far stronger and heavier coupler than ever used before, rendering the old couplers and draft gears extremely vulnerable and subject to abuse resulting in high maintenance expense. In addition, further strength requirements are imposed on the end framing of the car, which probably will result in one of two things, or both, viz.:

(1) There is such a thing as making a certain part too strong, which is the case with the present freight-car coupler. In place of couplers breaking in heavy end shocks, center sills are now failing under freight cars. For example, an A. A. R. standard freight-car center sill buckled behind the bolster in a hopper car less than a year old. The car was received empty by the Milwaukee from a foreign line and it was not possible to ascertain whether the car had been in a wreck or derailment. A check of the cost of maintaining various parts of freight cars for a period of five years shows that the cost of maintaining couplers on a series of cars built in 1929 was only 54 cents per car per year, proving that coupler failures are practically eliminated in freight cars.

(2) Will these untried imposed additional strength requirements for couplers and end framing for passenger-train cars create a construction which will cause the car to collapse in the center? We know from experience that existing steel passenger-train cars in wrecks, under most conditions, will be damaged at each end, where there are no passengers, but the main body will remain intact.

To develop the economic side of lightweight passenger-train cars requires far-reaching studies similar to what has been undertaken in analyzing the cost of handling freight cars. It is doubtful, whatever study may be undertaken, that any accurate data could be obtained because of the greatly varying operating conditions, track and grade conditions, and many other variables.

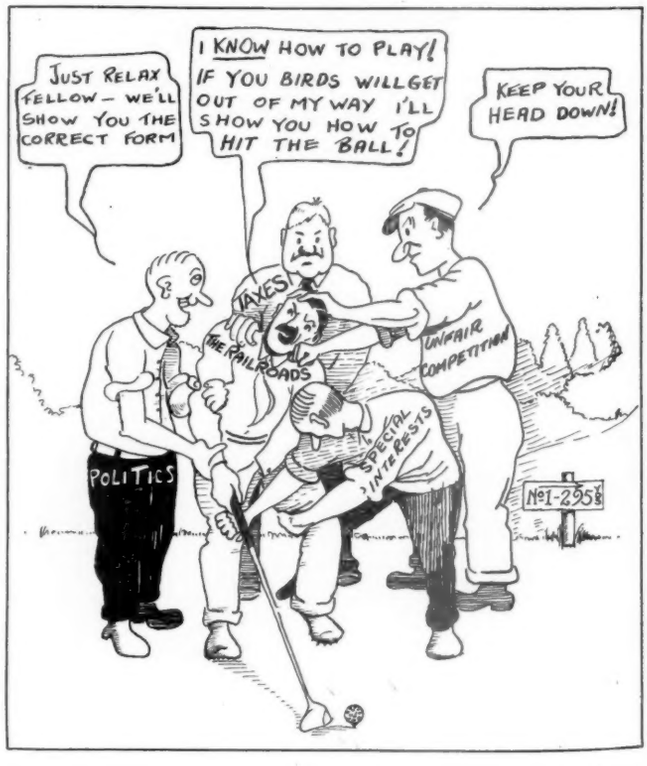
In an article by D. Fritz Reidemeister, published in Zeitschrift des Vereines Deutcher Ingenieure recently, he has come to the conclusion that 72 per cent of the total train resistance at 52.8 m. p. h. and approximately 43 per cent at 112 m. p. h. is dependent on or proportional to the weight of the car, such train resistance being made up of the following elements: Running resistance on level, straight track at constant speed (bearing friction, wheel-to-rail friction); resistance due to unevenness of track; air resistance; resistance due to gradient and curves; and resistance due to acceleration.

The Reidemeister article concludes that the increased cost of approximately 30 per cent for a lightweight car, over a conventional car, can be justified. I, however, am of the conviction that the present cost of a lightweight passenger coach is higher than the traffic can justify. If the Association of American Railroads would, together with the car builders, develop a basic standard design of passenger-car body, which would include standard underframe, standard vestibule construction, and standard common contour, car bodies of a standard construction could be cheaply constructed and still have complete liberty as to the window arrangement and other appointments inside the car. It is further the writer's conviction that, by such a procedure and careful selection of interior equipment appointments, a passenger coach could be produced for less than half of what is now being paid by some railroads.

* * *

"We All Feel Sympathetic Toward the Railroads . . . ."

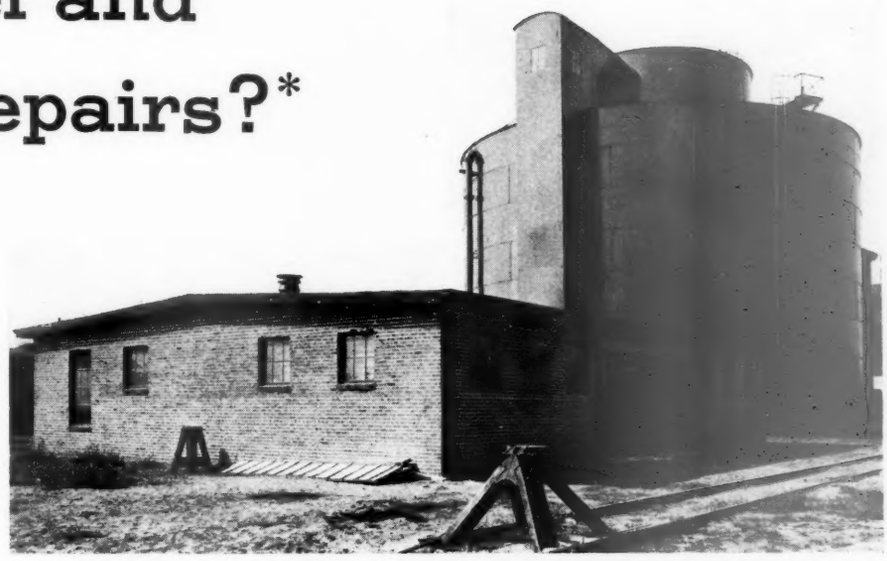
—Statement of Truck and Water Line Moguls at C. of C. Convention



Water Treatment—What Savings in Fuel and Boiler Repairs?*

By W. L. Curtiss

Mechanical Engineer,
New York Central, New York



This Plant of the New York Central, at Elkhart, Ind., Will Treat 150,000 Gal. Per Hr.

IN an investigation undertaken in 1924 on various units of the New York Central System, figures were collected which have made it possible to compute the economies in fuel consumption and boiler repairs that may be expected as a result of the use of water free from incrusting solids. The purpose of the investigation was to determine the location where locomotive water supplies were of such character as to require treatment, the kind of treatment necessary in each case, the proper method of administering such treatment and if the benefits to be derived would justify the expense.

It was realized at the outset that the first and most important fact that must be determined was the extent of the loss occasioned to the railroad as a result of the use of bad water, this being a measure of the value of water treatment. In 1924, the Committee on Water Service, Fire Protection and Sanitation of the American Railway Engineering Association concluded that for each pound of incrusting solids allowed to get into a locomotive boiler the loss to the railroad would amount to at least 13 cents, but it was decided to make an independent study of conditions on the New York Central with the object of determining, if possible, the actual loss resulting from the use of bad water without resort to a formula derived from data collected on other roads under different conditions. Hence, the investigation involved the collection of all information necessary to the determination of such a value and, while it also included the compilation of a large amount of other data pertinent to the subject, it is the purpose of this paper to present only such data as has a bearing on the value of water treatment.

Four Districts Studied

For comparative study four districts were selected in which, during 1923, there was little or no overlapping of locomotive runs. They included the Ohio Central Lines, which have the worst waters, the Line West with waters somewhat better, the Line East with still better waters, and the Boston & Albany, where the waters are very good. Statements were then obtained, for each of the four districts for the year 1923, showing the actual tons of locomotive fuel consumed, the actual direct costs of labor and materials for boiler repairs, and complete locomotive mileage statistics. The results may be summarized as follows:

Table I

	B. & A.	Line East	Line West	O. C. Lines
Average quantity of water-incrusting solids-grs. per gal.	3.40	7.20	11.51	16.06
Cost of boiler repairs—cents per locomotive-mile	2.98	5.05	5.76	5.83
Consumption of locomotive fuel-pounds per million pound-miles tractive effort	4,201	4,232	4,457	5,099

It will be noted that, without exception, the actual cost of boiler repairs per locomotive mile was greater where the quality of the water was poorer. This could hardly be a mere coincidence. Doubtless other factors contributed in some measure to these wide differences in cost, but if there was any good reason other than bad boiler water to account for the fact that the unit cost of boiler repairs on the Line West was nearly twice as great as on the Boston & Albany, such reason was not apparent.

The fuel consumption, it will be noted, likewise invariably increased as the purity of the water decreased. Incidentally, in selecting the unit of measure to be used in comparing fuel consumption, consideration was given to the gross ton-mile, the locomotive-mile and the tractive effort pound-mile. The gross ton-mile basis was rejected because it means very little when comparing fuel consumption in one territory where the grades may

* Abstracted from a monograph that was presented as a part of the report of the Committee on Water Service, Fire Protection and Sanitation of the American Railway Engineering Association at the recent convention in Chicago.

be comparatively level, with that in another territory having heavy grades, such, for example, as are found on the Boston & Albany. If it were a matter of comparing the average fuel consumption for one year with that for another year on the same territory, then the gross ton-mile basis would undoubtedly be the most accurate.

While the locomotive-mile is generally accepted as a basis for comparing locomotive maintenance costs, it was not regarded as a fair basis for comparing fuel consumption. If the average sizes and capacities of locomotives in the different territories were about the same, the fuel consumption per locomotive-mile, other things being equal, might be expected to be fairly constant; but when comparing fuel consumption on the Ohio Central Lines, where the tractive effort per locomotive averaged only 35,776 lb., with that on the Line West, for instance, where the average tractive effort per locomotive was 43,018 lb., this difference in tractive effort must be taken into consideration. The comparison in fuel consumption was made, therefore, on the basis of pounds of coal per million pound-miles of tractive effort.

Extent of Possible Savings

From the figures shown in Table I, a few simple calculations will disclose the total savings that would have been effected on the Ohio Central Lines, the Line West and the Line East, respectively, had it been possible to keep the cost of boiler repairs per engine-mile and fuel consumption per tractive-power-mile as low as the averages actually attained on the Boston & Albany, which had the benefit of good water. The results and summary of these calculations, all of which apply to the year 1923, are shown in Table II. If it can be assumed that, with equally good boiler water, the Line East, the Line West and the Ohio Central Lines could have reduced their expenditures for boiler maintenance and locomotive fuel to the unit level prevailing on the B. & A. (and there is no reason to doubt the correctness of this assumption) it is evident from the table that the total loss due to bad water on these three lines (the New York Central Railroad) amounted to $3,117,627 for the year 1923.

As a matter of interest a comparison was made between the figures given in the foregoing and corresponding values obtained by means of the A. R. E. A. formula for computing the cost of incrusting solids, which, as stated previously fixes the cost of such solids at 13 cents per pound. The comparable figures for the Line East, the Line West and the Ohio Central Lines, which show that the actual loss due to bad water was greater than the estimated loss based on the A. R. E. A. formula by an average of 19 per cent, are given in Table III.

Table II

	B. & A.	Line East	Line West	O. C. Lines	Total N.Y.C. R.R.
Boiler repairs—Cost per loco.-mile, cents	2.98	5.05	5.76	5.83	.....
Total loco.-miles	11,352,262	56,970,588	30,465,791	6,038,697	.....
Boiler repairs, excess cost per loco.-mile over B.&A., cents	.....	2.07	2.78	2.85	.....
Boiler repairs, total excess cost over B.&A.	.....	$1,179,291	$846,949	$172,103	$2,198,343
Lb. coal per million 16 lb.-miles tractive effort	4,201	4,232	4,457	5,099	.....
Total loco. tractive-power-miles, mill. lb.	413,336	2,047,912	1,225,077	206,317	.....
Lb. coal per million 16 lb.-miles tractive effort, excess over B.&A.	.....	31	256	898	.....
Lb. coal, total excess over B.&A.	.....	63,485,272	313,619,712	185,272,666	.....
Average cost coal per ton 1923-1924-1925*	.....	$4.15	$3.51	$2.56	.....
Total excess cost coal over B.&A.	.....	$131,732	$550,403	$237,149	$919,284
Summary					
Total excess cost boiler repairs over B.&A.	.....	$1,179,291	$846,949	$172,103	$2,198,343
Total excess cost loco. fuel over B.&A.	.....	131,732	550,403	237,149	919,284
Total excess cost over B.&A.	.....	$1,311,023	$1,397,352	$409,252	$3,117,627

*The actual cost of coal per ton in each of the three territories in question was averaged for the years 1923, 1924 and 1925, and these average prices were used for computing the total excess cost. The use of 1923 prices as a basis would have led to misleading conclusions because prices paid during the year were higher than the average for the last three years.

It should be pointed out that neither set of computations takes into account the indirect or intangible losses that result from the use of bad water. For example, the figures showing increased cost of boiler repairs do not reflect any part of the loss that must have been incurred by the railroad as a result of the fact that, while these repairs were being made, the locomotives were out of service. Also when an engine steams poorly it may delay its own and other trains and cause a loss to the railroad much greater than the cost of the actual excess fuel burned by that particular locomotive. Furthermore, no overhead has been included. Hence, all of the figures cited above represent a direct out-of-pocket loss.

Cost of Blowdowns

On the other hand, no consideration was given in the investigation to the increase in fuel consumption that occurs as a result of the boiler-water blowdowns that must accompany water treatment. Accordingly, it will

From the Chemical Mixing Tanks at the Elkhart Plant, the Chemicals Are Pumped to the Top of the Treating Tank, Where, Under Control, They Are Fed to the Raw Water

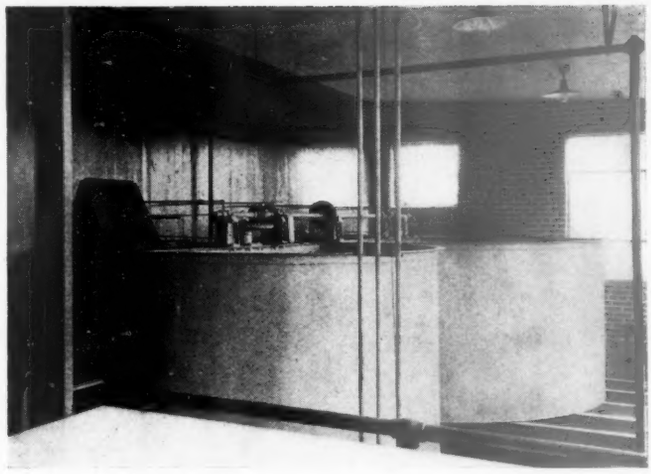
be of interest to include the results of tests made on passenger locomotives using treated water and equipped with continuous-type boiler-water blowdown devices. The observations were made with Class J-1 locomotives on runs between terminals at Cleveland, Ohio, and Toledo, and involved essentially the measurement of the quantity of water discharged as a result of blowdowns and calculation of the amount of heat that was thus dissipated, the resulting value then being converted into an equivalent quantity of coal, giving consideration, of course, to the efficiency of the boiler.

To condense the flash steam, the blowdown discharge was piped through the water space in the tender and collected in a tank car back of the tender to permit accurate measurement at the end of the trip. The temperature of the blowdown water was measured inside the boiler as near as possible to the blowdown valve. A gage was tapped into the blowdown line on the delivery side of the blowdown valve and an ordinary valve introduced in the line beyond the gage so that any desired back pressure could be maintained on the blowdown discharge. It was determined that, when the blowdown discharged to the atmosphere through a separator in regular operation, the average back pressure was 117 lb. per sq. in. Hence, during the tests this same back pressure was maintained constantly by operation of the hand valve.

Table III

	Line East	Line West	O. C. Lines	Total
Estimated loss in 1923, based on A.R.E.A. formula and comparison of water with B.&A.....	$1,034,600	$1,252,348	$330,727	$2,617,675
Actual loss in 1923, based on comparison of unit costs with B. & A.....	$1,311,023	$1,397,352	$409,252	$3,117,627

The blowdown valve was controlled automatically from the feed pump discharge line and was, therefore, open whenever the feed pump was in operation. It was observed that the blowdown valve was open 80.3 per cent of the time en route and that the blowdown rate was 82 to 92.7 lb. per min. during the actual time that the blowdown valve was open. In the calculations the latter or maximum rate was used. On the basis of these observations it was calculated that the coal required to heat the blowdown water amounted to 1.54 lb. per locomotive-mile; thus, with coal costing $2.98 per ton in the tender, the cost per 1,000 locomotive-miles was $2.29. Since the average monthly mileage of the locomotives was 7,763, the average cost of heating the blowdown water was $17.78 per locomotive per month.



The Chemical Preparation Tanks at the Central's Large Treating Plant at Elkhart, Ind.

Saving in Washouts

On the other hand it has been demonstrated conclusively that, with the use of treated water and the continuous blowdown, these locomotives can be operated 30 days between washouts, while previously they were washed out on an average of four times a month. Thus, the use of treated water saves the expense of three washouts per month. Data collected from various terminals indicates that the average cost of washing out a locomotive boiler is $12. This includes $5 for labor, while the $7 covers the value of the water for refilling the boiler, the cost of refueling, the cost of disassembling the gage glass and connections and cleaning them, the checking of the safety valve and the regrinding of the boiler and feed line checks, all this work being done every time the boiler is washed, regardless of the number of washings per month. Hence, the saving in washout expense per locomotive per month is $36, or double the value of the fuel lost due to blowdowns.

The blowdown device tested, with an orifice $^{8}/_{32}$ in. in diameter, has the largest opening that has been used. It has been found since that an orifice $^{7}/_{32}$ in. in diameter is large enough for nearly all cases, and if an orifice of this size were to be used the fuel loss would be reduced below that shown above.

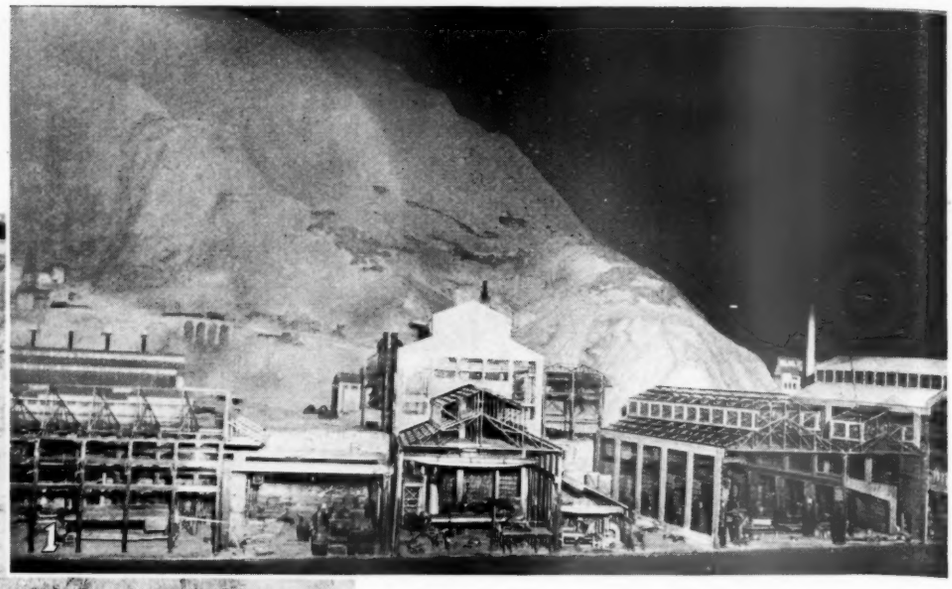
Canada's Second "Agreed Charge"

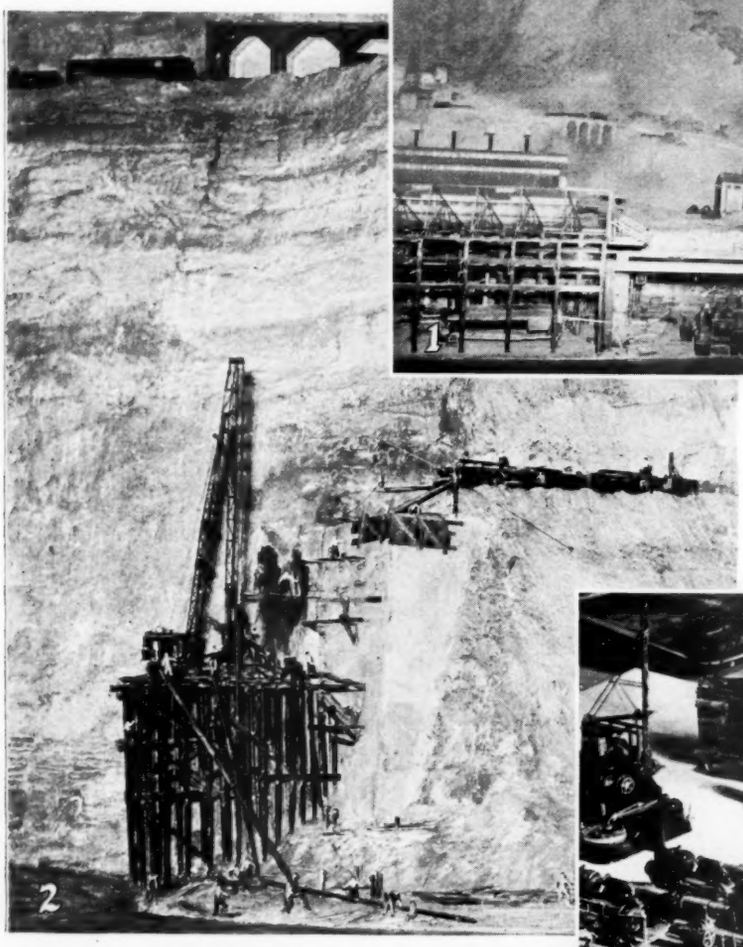
Agreed charge No. 2—between the Canadian National, the Canadian Pacific and the Canadian Pacific Express Company and a co-operative marketing association in Manitoba—provides a scale of mileage rates on eggs shipped into Winnipeg for distances up to 300 miles. The rates apply on l. c. l. lots of not less than 500 lb. each and vary from 17 cents per 100 lb. for distances up to 25 miles to 68½ cents per 100 lb. for 300 miles.

These low rates are accorded to this shipper on the understanding that not less than 80 per cent of all his egg receipts in Winnipeg from a radius of 300 miles must come in by rail. If he should fall down on this agreement and receive less than 80 per cent of his eggs by rail—then he will become liable to the railways for the regular tariff rate on all the eggs he has shipped by rail; plus a penalty of 10 per cent of the agreed charge for all eggs moved by any other form of transportation.

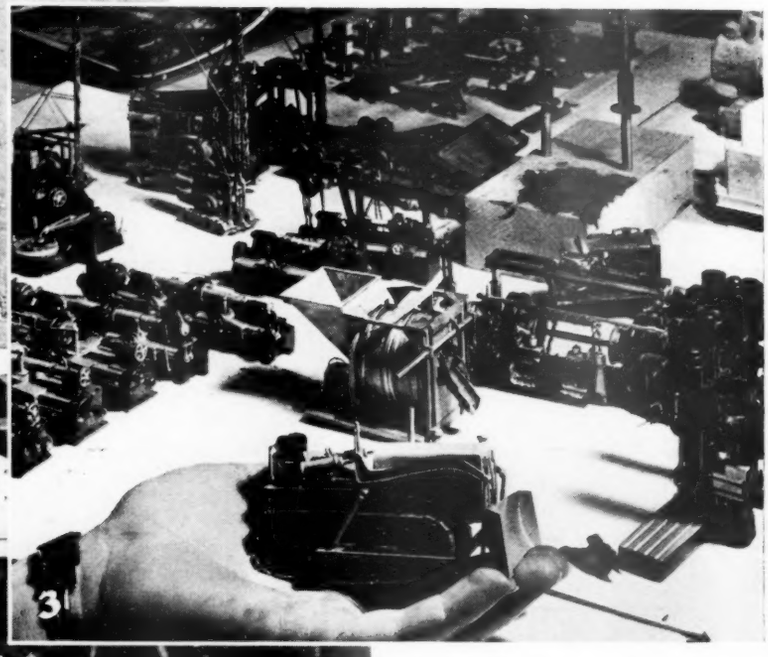
The agreement becomes effective on June 15 and is to run for at least a year. Railroad representatives have the right to inspect the shipper's books and records to assure themselves that the agreement is being kept. Collection and delivery service by the railways is included in the rates, at all such points where this service is regularly offered.

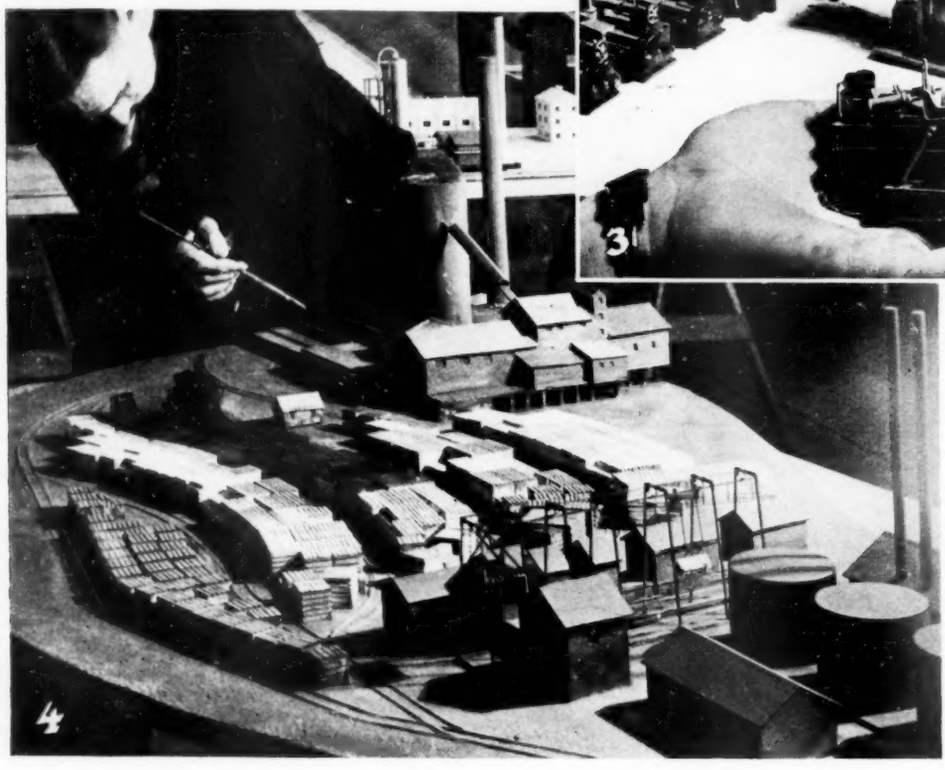
(1) A Portion of the Locomotive Boiler and Erecting Shops in "Building the Railroad"





(2) Driving Piles for Trestle-Work on the "0"-gage Model Railroad





(3) One-quarter Inch Scale Machines for Use in the Supply Exhibit, All Working Models; Note Bull-Dozer in the Foreground and Machines for Car Shops in the Rear

(4) This Lumber Plant Turns Out Miniature Ties and Timbers for the Model Railroad

Supply Trade at N. Y. World's Fair

Being a description of the joint exhibit of railway and supply companies which shows the making of a railroad; also outside exhibits

LOOMING over the main entrance to the railroad exhibit building at the New York World's Fair is a large three-tiered dome which, in the manner of "functional" architecture, symbolizes the form of a locomotive roundhouse. Within this dome is located a joint exhibit entitled "Building the Railroad," erected and maintained from funds contributed by more than 630 railway supply companies.

The feature of this exhibit is an animated cyclorama in the form of a huge artificial mountain 28 ft. high at the crest and 80 ft. in diameter at the base on which is located an interconnected system of working models designed to illustrate the building of a railroad and the manufacture of its equipment. So large is the "mountain" that its hollow interior affords an exhibition area, 26 ft. high and 60 ft. in diameter, in which scores of representative displays of the railway equipment industry are placed in view and a motion picture program presented. Yet so small is the scale of its rugged model landscape that its component buildings and railroad rolling-stock measure but one-quarter inch for every foot of "the real thing" and standard steam locomotives stretch only 1½ ft. along the "O"-gage model track.

Visitors inspect the various model units located in succession along the sides of the "mountain" by walking along a circular ramp 12 ft. in width which almost completely circumvents the cyclorama at or near its base. It is estimated that capacity is thus afforded for between 800 and 1,000 persons to view the outside of the cyclorama simultaneously. Near the end of its circuit this ramp turns about and dips into the interior area within the shell of the artificial mountain, where visitors may inspect individual exhibits which demonstrate the latest developments in railway equipment and accessories. Exit therefrom is through a separate passage-way leading back to the lobby of the railroad exhibit building.

Specifically, the purpose of the cyclorama is two-fold: first, to illustrate the building of a railroad "from the ground up," including both the roadway and other fixed property itself and the rolling stock and all its component parts; and, second, to portray the inter-relation of all the processes of raw-material extraction, manufacturing and transportation which go into the finished products purchased by the railways. This story is told step by step through a series of miniature lay-outs which begin with the clearing of a forest for a right-of-way and end with a complete sub-surface passenger terminal beneath the streets of a model metropolis. Between these extremes, along the track of a model railway running about the cyclorama, working models are grouped to illustrate operations of the chief railway supply industries.

Designers of the models, in a special effort to achieve accuracy, have consulted with scores of railroad and industrial engineers to become familiar with the peculiarities of railroad construction and design, and referred to a number of plans and illustrations of typical industrial plants. Indeed, so ambitious were they for completeness that a consulting geologist was brought in to make certain that the miniature landscape in which the model mines, mills, quarries, etc., are located is faithful to reality.

Entering upon the ramp at the very base of the mountain, the visitor first sees in miniature the construction of a roadbed,—through severely rugged terrain for dramatic effect. Tiny lifelike figures cling to precipitous plaster slopes on location jobs; wooden trestle work is thrown across a gully; a tunnel is bored; a work train dumps ballast and track materials; all of which is illustrated with moving graders, pile-drivers, cranes, etc. The extraction of basic materials used in these operations is shown by a miniature lumber mill, quarry and cement plant located on the shores of a typical mountain lake behind a concrete dam. Tracks lead down from these to the now-completed model railroad for distribution of the raw materials.

Beyond a dividing ridge in the "mountain" are located complete locomotive shops open at the ramp end to show working machinery within. Behind these, across the tracks, is a miniature steel plant with a rail rolling mill. Still farther up the mountain are located open pit iron mines with mining machinery in full operation.

The gently-sloping ramp then reaches its summit whence the visitor may view the extraction and processing of railroad fuel and maintenance products in scattered model units which include oil wells and refineries; three types of coal mines and a coal by-products plant; a coal storage yard; a small reservoir and water-softening plant; and general repair shops.

The extraction of non-ferrous metals, including copper, aluminum, nickel and manganese, is illustrated next in various mining units, and their application shown in a model fabricating plant. Further along the line are spread the various buildings of a complete freight car building plant.

The landscape then changes to that of a manufacturing zone surrounding a great city, wherein are located accessory plants to illustrate the production of textiles, glass, etc. Here also, for convenience, is placed a model passenger car shop. The model railroad has now become a four-track trunk line and, after passing through this outlying section, dips under a metropolis in miniature into a sub-surface passenger terminal. The latter, the last item on the exterior of the cyclorama, is enclosed in glass on all sides and holds the visitors' attention until imperceptibly the ramp has turned and carried them into the interior of the "mountain."

In the 10,000 sq. ft. of space in the interior of the "mountain" are placed individual exhibits of the railway supply industry, selected primarily for the purpose of educating the general public in the background of modern railroad technique. The more general of these exhibits are placed on view in display windows built in the side walls of the exhibit room, while the remainder are grouped on a large platform behind a projection screen on which there are shown motion pictures and "stills," further illustrating the manufacture and application of railroad equipment and accessories. In addition, special small dioramas show the "anatomy" of a modern steam

locomotive and passenger car, respectively. All exhibits are simply and clearly marked and explained by name cards; no advertising matter appears thereon.

To date, 39 supply houses are scheduled to have representative products on display in the joint exhibit area. Their names, together with their exhibits, follow as grouped in the displays:

Company	*Exhibits*
Group A	
The Buda Company	Track jack and track liner
Evans Products Company	Models of "auto-railer" locomotive and freight car equipped with auto-loader apparatus
Conley Frog & Switch Co.	Models of expansion rails and frogs
Dearborn Chemical Co.	Two types of automatic chemical pumping equipment used in feed water treatment; boiler foam signal indicator
Elwell-Parker Electric Company	Drive unit of a power industrial truck
Heywood-Wakefield Company	Car chair
S. Karpen & Bros.	Rotating and reclining coach seats
National Malleable & Steel Castings Co.	Tight-lock coupler; old-style link-and-pin coupler
Oliver Iron & Steel Co.	Center-insulated gage-rod, with screw spikes, track bolts, etc.
Oxweld Railroad Service Company	Sample oxy-acetylene-welded rail, together with cross section of similar welded rail
Union Switch & Signal Co.	Full-size three-position searchlight signal
Group 1	
American Brake Shoe & Foundry Co.	Car center plates
Duff-Norton Manufacturing Company	Track jack, locomotive jack and power jack
General Steel Castings Company	Model set-up of locomotive bed and water-bottom tender frame. Length 14 ft. overall, width approx. 1 ft., height 16 in.
Hunt-Spiller Manufacturing Company	Pair of bushings with a valve applied, mounted on a light frame
Locomotive Firebox Company	Small model of firebox equipped with duplex Nicholson thermic syphons, 2 ft. long, 9 in. wide and 12 in. high
Valve Pilot Corporation	Locomotive valve pilot instrument
Group 2	
Ajax Hand Brake Company	Half-sized model of Ajax hand brake 30 in. high 20 in. deep, 10 in. wide
American Brake Shoe & Foundry Co.	
Brake Shoe & Castings division	Locomotive driver brake shoe, weight 60 lb. Passenger car brake shoe for high-speed trains, weight 40 lb. Freight car brake shoe, weight 20 lb. Self-locking brake shoe key, weight 1 lb.
National Bearing Metals Corp.	Car journal bearing, weight 24 lb.
Barco Manufacturing Company	FT-1 car steam-heat connection, chromium-plated model, on a tripod
Edna Brass Manufacturing Company	Lubricator
Harrison Steel Castings Company	3 models of couplers, emergency knuckles, and railroad crossing, 1½′ X 3′, height 8″
A. Stucki Company	Sample side bearing
Westinghouse Air Brake Company	Sectional "AB" brake valve mounted on stand
Group 3	
SKF Industries	Self-aligning, spherical roller-bearing
Sunbeam Electric Manufacturing Company	Cross-sectional turbo-generator
Timken Roller Bearing Company	Roller-bearings
Group 4	
Goodall Rubber Company	Semi-metallic hose
R. E. Dietz Company	2 "Vesta" lanterns
Landis Machine Company	"Landmatic" head for lathe
Group 5	
Ehret Magnesia Manufacturing Company	Patented system of underground insulation
Electric Storage Battery Company	Cut-away cell of batteries used in cranking Diesels
International Nickel Company	Cut-away model of type of nickel-iron alkaline storage battery
Larkin Company	3 small pieces of china for railway dining cars
Okonite Company	Cross-section of samples of railroad signal cable
Philco Radio & Television Corp.	Air-conditioning and car-lighting battery units
Pyrene Manufacturing Company	Sectional model of fire extinguisher
Rubico Brush Company	Display of raw materials employed in manufacture of brushes
Group 6	
National Aluminate Corporation	Model 33 in. square by 5¼ in. high of unit chemical treating plant

"Building the Railroad" is open daily from 10 a. m. to 10 p. m. and is free to all visitors. The exhibit was erected from funds supplied by 630 railway equipment and supply companies organized under a committee headed by George Blackmore, president, Westinghouse Air Brake Company, with S. G. Down, first vice-president of Westinghouse, as vice-chairman. Leonard Outhwaite, of Outhwaite Exhibits, New York, was designer of the exhibit and the project was carried on in collaboration with L. G. Coleman, director of the railroads' exhibit at the New York World's Fair.

Exhibits in Other Parts of the Fair

A number of industrial concerns of which the railroads are the customers include items of general interest to railroaders in their individual exhibits located outside the transportation area of the fair. These are necessarily of a popular character and in most cases are found grouped with exhibits which do not apply to transportation; nevertheless it might be of interest to indicate the nature of a few of those so far observed by *Railway Age* representatives.

Visitors who enter the General Motors Corporation exhibit will look into the inner workings of a modern Diesel-electric locomotive as they pass into the building. The Electro-Motive Corporation, a subsidiary of General Motors, has placed a 4,000-hp., two-unit Diesel-electric locomotive at the entrance of the exhibit (located just opposite the railroad exhibit building), which is similar in general characteristics to an "A" and "B" unit of the 6,000-hp. locomotives recently purchased by the Seaboard Air Line for use on the "Orange Blossom Special." The "B" unit of the locomotive on exhibit has its exterior enclosed in glass, making the power units and auxiliaries readily visible to inspection from the outside. Further, the main Diesel engines in this unit have been cut away to show the action of the parts, which are in motion.

Elsewhere in the General Motors exhibit, the Hyatt Bearings division is showing a section of a streamlined passenger car including a portion of the truck and a complete wheel with Hyatt railroad roller bearing journal box assembly. This, too, is an animated, cut-away exhibit. Included also is a roller-bearing journal-box similar to those applied to the 4,000-hp. Diesel-electric locomotive.

In the Metals building, adjacent to the Perisphere and Trylon, theme center of the fair, the Timken Roller Bearing Company has included in its exhibit a set of Timken railroad bearings and the Timken High Dynamic steel parts from one side of a steam locomotive. This consists of the lightweight reciprocating and revolving parts such as the piston and rod, crosshead assembly, main and side rods and crank pins.

The Bethlehem Steel Company, also in the Metals building, is exhibiting a number of appliances used in railroad track construction. These include insulated gage-rods, metal ties (used primarily in mine tracks), a switch heater, a spring rail-brace, a hook-flanged guard rail, a ground-throw switch stand and switch plates. The exhibit also includes photographs of special trackwork and different types of freight cars.

Included in the exhibit of the Link-Belt Company are a number of illuminated colored photographs showing various types of this company's equipment engaged in railroad operations. One group of pictures shows various adaptations of the locomotive crane; others illustrate various types of car dumpers and the use of car-spotters in railroad service.

The exhibit of the John A. Roebling Sons Company contains a length of model electrified railway designed to illustrate the application of the company's cable products in catenary construction.

The United States Steel Corporation, located in a separate building, includes in its exhibit a miniature layout containing working models of transportation equipment of the future, including a "futuristic" streamlined train.

Freight Station Section Meets After Five Years

Problems of the agent receive consideration at successful convention at Chicago

IN its first meeting since 1934, the Freight Station section of the Operating-Transportation division of the A. A. R. convened at the Hotel Stevens, Chicago, for a two-day session, on May 10 and 11, with approximately 500 supervising and freight agents in attendance. Under the direction of Chairman J. T. Gallagher, manager station service, Erie, the meeting was characterized by the large amount of work done and the informative discussion stimulated by the committee reports. A wide range of subjects was considered, but the reports were purposely made short and to the point to stimulate discussion and citing of specific instances from the floor so that the maximum of information useful to the agents might be brought out. In the interim since the last convention, the Section has been continuing its work by means of meetings of local sections at points throughout the country.

The Speakers

The speakers included Col. R. S. Henry, assistant to president, American Association of Railroads; G. Metzman, manager freight transportation, New York Central, who is also chairman of the Operating-Transportation division, A. A. R.; L. M. Betts, manager, Open Car division, A. A. R., who presented a paper prepared by W. C. Kendall, chairman, Car Service division, A. A. R.; and several members who presented papers on various subjects as outlined later.

Mr. Metzman greeted the agents in his capacity as chairman of the Operating-Transportation division, A. A. R., to which the Freight Station section belongs. "Since the agent is the man who accepts more responsibility with the shippers than any one else on the railroad," he said, "his importance can hardly be overestimated. As the immediate, personal representative of the railway in his community, his actions should be exemplary in personal as well as business affairs." Mr. Metzman also stressed the importance of heavier loading of cars on transportation costs, and outlined specifically what agents can do to bring about the more efficient loading of cars, and hence more efficient operation at a lower cost.

Col. Henry's Address

Col. Henry stressed the fact that railroading was one of the most complex of industries in that it required a knowledge of how so many widely different things had to be done. The freight station agents are at the core of this complex business, he said, because nearly everything passes through their hands, and they work for all departments. The agent's work cannot be departmental, since he works for the railroad as a whole.

Every railroader, Col. Henry said, is a public relations man, and this is particularly true of station agents, who are in such immediate contact with the public. Since the public does not think of railroads as individual companies but railroads as a whole, any errors of omission or commission on the part of agents or their staffs create a bad opinion in the public mind for the railways as a whole. He pointed out that the public attitude toward the railways is based on emotion rather than logic and that the public wants not only what it pays for, but a certain amount of friendliness as well.

Col. Henry said further: "The railroad problem is only a part of the greater and broader transportation problem. The basis of life on this continent is mass transportation, the sort of transportation that only the railroads are equipped to handle." He cited examples to show the number of trucks that would be required to handle the freight now hauled by the railroads—at North Platte, Neb., for instance, 8,000 5-ton trucks daily would be required to handle the freight moving through the city. He also stated that any of the larger freight yards in Chicago handles a volume of freight that would require between 40,000 and 50,000 trucks daily to move. He also exploded the fallacy of "cheap water transportation" by citing the fantastic costs of "building" rivers under stimulus from local, vote-seeking politicians.

Mr. Kendall's Paper

In presenting Mr. Kendall's paper, Mr. Betts stated that five billion dollars worth of freight equipment was in constant circulation in this country, and that the agents were responsible to a large extent for seeing that this huge investment brings in returns. The importance of correct loading at freighthouses and transfers is great, and to obtain such correct loading, a careful plan of empty set-ups is necessary.

Mr. Betts said further: "As between freighthouses and transfers located on neighboring roads, where there is a regular two-way loading of merchandise, it is entirely practicable to arrange for reciprocal use of ownerships, so that there will be an equitable division of per diem expense and entirely loaded mileage. This practice should be encouraged by supervising officers, but the station agent is in position to be the first one to see the opportunities for such joint arrangements. Local officers may also be helpful in providing more economical car use by watching for opportunities to consolidate tonnage in l. c. l. service wherever this can be done without delay to traffic."

Mr. Betts also urged co-operation in making the car service rules meetings successful. To date, 162 of these meetings have been held, attended by 19,596 railroad employees, with an average attendance of 121 per meeting. These meetings have been successful in increasing the knowledge of the car service rules on the part of employees concerned with handling the cars. They are conducted on a question-and-answer basis and are entirely

informal and interesting, as indicated by the voluntary attendance of nearly 20,000 employees. Mr. Kendall's paper also gave many specific suggestions as to avoiding damage to lading and equipment by contamination or by ice left in cars that had carried perishables requiring top icing.

Committee Reports

Reports were presented by the committee on station traffic, of which G. R. Littell, terminal agent, Baltimore & Ohio, is chairman; the committee on station and terminal operation, of which J. P. Moews, agent Illinois Central, is chairman; the committee on station office operation, of which W. C. Leitner, agent, Chicago, Rock Island & Pacific, is chairman; and the committee on loss and damage, of which M. G. Carson, joint agent, C. C. C. & St. L.—C. & O., is chairman. As previously stated, these reports were made purposely brief to induce discussion from the floor and this result was obtained, as the members cited many specific instances and useful examples to prove many points.

Chairman Littell's report dealt with traffic solicitation as it applies to the local agent and his force, and also as to stopping-in-transit rules. It offered suggestions as to solicitation, not only by the agent and his immediate staff, but also by the organization of employee groups. The sales promotion program used on the Central region of the Pennsylvania was also presented to indicate the methods followed in agency solicitation activities, and outline an organization for sales promotion activities among the agency staffs. This program also stressed the importance of notifying all shippers or potential customers of changes in service.

The committee on Station Operation, under the direction of Chairman Moews, reported on pick-up and delivery service and means for improving the handling of L. C. L. freight. Under this latter classification, a number of modern devices for handling merchandise were described and also discussed from the floor. The manufacturers of these devices are co-operating with the railways in their efforts to regain merchandise traffic and to handle it promptly, efficiently and at a reasonable cost. Mr. Kendall's paper on car service and car handling previously referred to, was incorporated as an integral part of this committee's report.

Chairman Leitner of the committee on Station Office Operation reported on delays in making returns on C. O. D. shipments, on the use of shipping tickets in lieu of freight waybills on L. C. L. traffic, on the proper place for entering C. O. D. notations on bills of ladings and shipping tickets, and on safety. With reference to safety, the report stated: "Too many supervisors think it is their only duty to stand guard over their men. Their duty is rather to teach the men to conduct themselves safely whether supervised or not."

The discussion brought out that a number of efforts are being made to work out a system for using a shipping ticket in lieu of a freight waybill, or at least to avoid recopying the entire bill-of-lading to make a waybill, with the increased chances of error inherent in such a proceeding. Several examples of combination shipping tickets and waybills were shown, and their use described. H. N. Hammond, agent, Chicago & North Western, presented a paper as part of this report, giving the results obtained by the use of the Recordak, a machine for photographing waybills, at Proviso Transfer. According to Mr. Hammond, this machine is bringing about a considerable monthly saving.

Chairman Carson, of the Loss and Damage committee, reported on damage to furniture; what can be done to bring about an improvement in stowing L. C. L. freight to eliminate loss and damage, and the inspection of freight and preparation of inspection reports. The present practice of shipping furniture in corrugated paper packages instead of crates is causing claims on this commodity to increase alarmingly. The report and the discussion brought out various means that are being employed to combat this tendency. During the discussion, it developed that the use of the camera for portraying the condition of damaged shipments upon arrival, is increasing rapidly and giving good results.

A. M. Eckstein, agent, Norfolk & Western, Kenova, W. Va., presented a paper on inspection and inspection reports, wherein he placed the responsibility directly with the agent for seeing that this is done. He also described the benefits derived from the efficiency meetings held periodically on the N. & W.

The committee report stated that, with the shortness of time of present merchandise schedules, freight handling time has been reduced to the minimum and for this reason, stowing methods have had to be revised to provide for increased speed. G. M. Tipton, terminal agent, Baltimore & Ohio, Pittsburgh, Pa., presented a paper on the subject of fast and proper stowing and many other agents described their activities in this regard.

First Quarter Railway Buying

EQUIPMENT, materials and fuel purchased by the Class I railroads during the first three months of 1939 totaled approximately $217,000,000, as compared with $162,217,000 in the first quarter of 1938—an increase of approximately $54,783,000 or 34 per cent—according to figures compiled by the *Railway Age* from special reports received from the carriers.

The quarterly total included $119,424,000 of materials, exclusive of fuel, received from manufacturers, as compared with $89,850,000 in the corresponding period of 1938—an increase of $29,574,000 or 33 per cent. Orders for new locomotives and cars from builders totaled approximately $20,680,000, as compared with $9,537,000 in the first three months of 1938, making the total purchases of materials and equipment from manufacturers $140,104,000, as compared with $99,387,000 in the first quarter of 1938—an increase of $40,717,000 or 41 per cent.

Purchases of fuel for the three months totaled $76,896,000, as compared with $62,830,000 in the corresponding period of 1938.

Total purchases in the first quarter, though less in the

Railway Purchases—Materials, Fuel and Equipment

3 Mos.	Materials received from mfrs. (000)	Equipment ordered from mfrs. (000)	Total from mfrs. (000)	Fuel (000)	Total including fuel (000)
1929	$237,397	$150,266	$387,663	$91,703	$479,366
1930	232,690	83,845	316,535	87,310	403,845
1931	141,881	8,343	150,224	66,119	216,343
1932	76,700	1,684	78,384	53,700	132,084
1933	54,764	334	55,098	45,409	100,507
1934	86,214	17,415	103,629	55,447	159,076
1935	81,050	4,066	85,116	67,350	152,466
1936	111,864	13,759	125,623	68,518	194,141
1937	173,736	103,424	277,160	83,026	360,186
1938	89,850	9,537	99,387	62,830	162,217
1939*	119,424	20,680	140,104	76,896	217,000

* Revised to May 15, 1939.

aggregate by approximately $143,186,000 or 40 per cent than in the first three months of 1937, were larger than in any other corresponding period of the last nine years with the exception of 1937. Purchases of equipment and materials from manufacturers were the largest in the first quarter of any year since 1930 excepting 1931 and 1937.

Railway Purchases—Materials and Fuel

	Fuel (000)	Rail (000)	Cross-ties (000)	Other Material (000)	Total (000)
January, 1939	$24,413	$530	$2,673	$37,773	$65,389
February, 1939	24,353	2,350	3,004	27,775	57,482
March, 1939	28,130	4,188	4,952	36,179	73,449
March, 1938	20,283	2,381	4,043	23,966	50,673

Materials (exclusive of fuel) purchased from manufacturers in March totaled approximately $45,319,000, as compared with $33,129,000 in February and $40,976,000 in January. The total in March was larger by approximately $14,929,000, or 48 per cent, than the corresponding buying in March, 1938, and reflected the highest volume of purchasing in 17 consecutive months. Receipts of rails in March, including rails ordered in the last quarter of 1938, totaled approximately $4,188,000, as compared with $2,381,000 in March, 1938. Cross tie deliveries in March were about equal to those of March 1938, and were 65 per cent greater than in February, 1939, and about 85 per cent greater than in January. Purchases of miscellaneous materials, which include repair parts for locomotives and cars, totaled $36,179,000 in March, as compared with $27,775,000 in February, 1939, and $23,966,000 in March, 1938.

Committee Report on S.2009

Revised Wheeler-Truman "key bill" recommended to Senate as "realistic, sound and carefully considered" measure

WASHINGTON, D. C.

THE Senate committee on interstate commerce on May 17 filed in the Senate its favorable report on S.2009, the Wheeler-Truman "key bill" as amended in committee following the public hearings. The report (No. 433) presented the bill thus revised as a measure which "represents a sound, realistic and carefully considered approach to the solution of one of the most grave problems which confronts the people and the Congress of the United States." It adds that "the importance of a sound transportation system is recognized by all;" while "it is likewise apparent to even the unobserving that this nation cannot enjoy a sound transportation system if its most important carrier faces ruin and chaos . . . action must be taken not only to preserve the railroads but the entire transportation system of this country."

Meanwhile President Roosevelt said at his May 12 press conference that he entirely approved of the objectives sought to be accomplished by the general transport bills before the Senate and the House. He added that he was not discussing details whereby the separate bills approach the objectives in different ways; but he thought such differences could be ironed out as the bills are before Congress or in conference of the two branches. The President had seen Chairman Wheeler of the Senate committee on interstate commerce and Chairman Lea of the House committee on interstate and foreign commerce on the previous day—callers who left him with the impression that things seemed to be in very good shape. The House committee is still holding executive sessions on transport bills, and it was stated as this issue went to press that no report would be forthcoming for another week or more.

Gives I. C. C. Power to Require L. C. L. Pooling

As pointed out in the *Railway Age* of May 13, page 834, where the Senate committee's decision of May 9 to make the favorable report on S.2009 was noted, the reported bill embodies many changes from the measure as introduced; but regulation of water carriers by the Interstate Commerce Commission and codification of the Interstate Commerce Act remain. Among changes in addition to those reviewed in last week's issue was the elimination of all reference to air transport. Also, before the bill was reported there was inserted in section 10 an amendment giving the I. C. C. power to require railroads to handle all their l. c. l. freight, including traffic now handled by express companies or freight forwarders, through an agency or agencies created and owned by all carriers or groups of carriers, which agencies would be made common carriers subject to the provisions of the act. Employees displaced by such a change, which the commission may require on a finding that it would be "in the interest of better service to the public or economy in operation," would be subject to the so-called Washington Agreement. Presumably the provision would not bring forwarders as now constituted under regulation.

Shortly after the report was filed the National Rivers and Harbors Congress issued a statement promising a fight against any legislation designed to give the I. C. C. regulatory jurisdiction over water carriers. The statement went on to say that Chairman Bailey of the Senate committee on commerce and Senator Clark Democrat of Missouri, were expected to lead a fight to have S.2009 recommitted for amendments to place the water carrier regulation under the United States Maritime Commission. Last week Senator Clark introduced in the Senate an amendment "intended to be proposed by Mr. Bailey" to S.2009, which would do that by making the term "commission" mean Maritime Commission when used in connection with provisions dealing with carriers by water.

To get back to the committee's report on S.2009, it went on from the above-mentioned general statement of the necessity for enactment to review events leading up to the framing of the measure in its reported form. There came references to the report of the President's

first railroad committee—the so-called committee-of-three or the Splawn-Eastman-Mahaffie committee; to the more recent report of the committee-of-six; to the "extensive" public hearings; and to the "lengthy executive sessions" of the subcommittee. As a result of all these proceedings, the report asserts, "meritorious objections have been overcome."

Country Has Lacked Transport Policy

Having previously noted that it is intended "that the act will be construed in the light of the declaration of policy," the report observed that "for many years it has been the view of keen students of the transportation problem that there has been no consistent national policy with respect thereto."

"One reason urged in support of that view," it goes on, "is that while the principal haulers of traffic and passengers, the railroads, have long been strictly regulated—as have, since 1935, motor trucks and buses engaged in interstate transportation—other forms of transportation are developed at public expense and without supervisory regulation. . . . The sum and substance of the matter is that at the present time there is a plethora of transportation facilities, and under these circumstances it becomes apparent that some tribunal must be empowered with authority to determine into what particular niche each form of transportation is best fitted, and to discourage other forms of transportation from entering therein. . . . It has also been urged, and it seems sound, that there is no equality in treatment when the railroads, and lately the motor vehicles, are strictly regulated, and other forms are regulated, if at all, to a much lesser extent.

"The alternative is to greatly lessen the regulation with respect to railroads and motor vehicles or to increase regulation on other forms of transportation. It may be safely said that neither the strictly regulated railroads nor the motor-carrier operators favor the elimination of all regulation. Consequently the remaining remedy is to so extend regulation to competing forms of transportation, other than air, which only recently was placed under the Civil Aeronautics Authority, and retaining to each such lawful advantages as are inherent therein, so as to, as nearly as possible, equalize them and put them on a common footing, at least from a regulation standpoint. This is not for the purpose of favoring one form of transportation over another or seeking to put any form of transportation out of business; it is, as stated, simply to put them all on a common basis or common starting point in their sharp struggle for business. If one or more forms of transportation cannot survive under equality of regulation, they are not entitled to survive. This is not railroad philosophy; it is transportation philosophy. The problem is not a railroad problem, but is, as the Interstate Commerce Commission has said, a transportation problem."

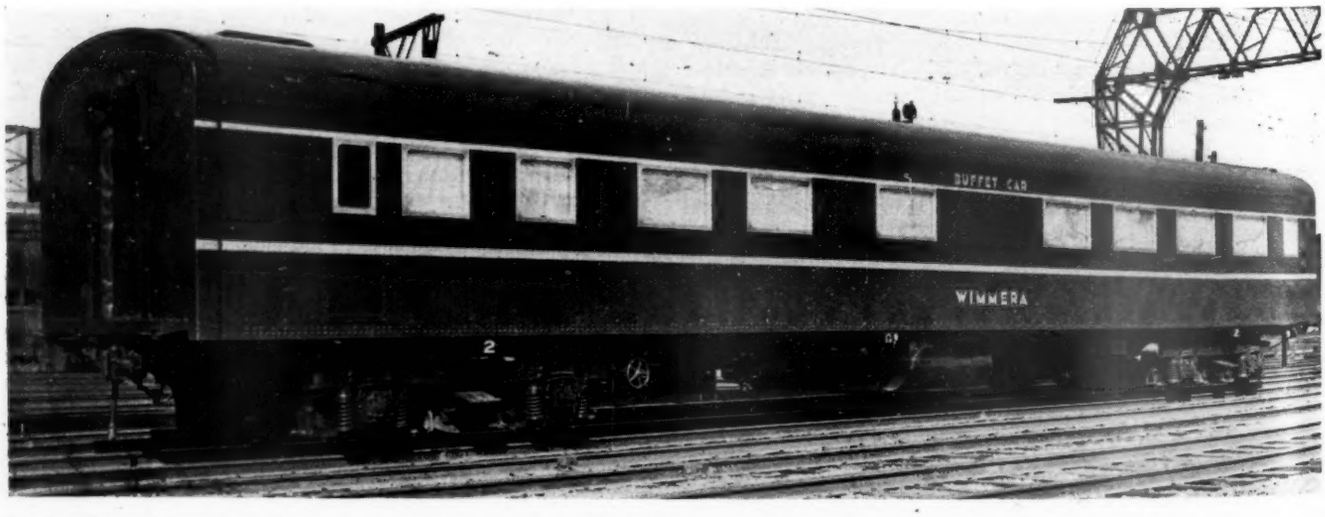
Water-Carrier Position Inconsistent

Next the report noted the position taken by water carriers at hearings during previous sessions of Congress that repeal of the long-and-short-haul clause would mean the destruction of their business; and admissions by opponents of S. 2009 that regulation-free railroads could destroy or seriously impair the business of competing agencies. Thus it concluded that it is necessary to regulate railroads "to insure a sound transportation system," adding that the position taken by water carriers "that railroads should be regulated, and they should not, though they compete on rights-of-way improved and largely maintained by public funds, is wholly inconsistent and completely untenable." In answer to the contention that Congress has not had time to study water-carrier regulation, the committee points out that such legislation has been under consideration in Congress since 1935, when it was recommended by the President.

In defense of codification the report has this to say: "The present provisions of the Interstate Commerce Act have been redrafted in what is considered a more logical and orderly manner so as to apply to the newly regulated carriers, saving so far as possible the existing language so that full advantage may be taken of the many interpretations, both judicial and administrative, which have been put upon the respective sections." The provision permitting employee representatives to intervene in I. C. C. cases is called "important progress in regulatory legislation"; while "another important addition to the act" authorizes the I. C. C. to exempt domestic water carriers from regulation when it appears that they are unduly discriminated against by practices of foreign water carriers.

The remainder of the report is a section-by-section explanation of the bill, which was highlighted in similar fashion in the above-mentioned article in the *Railway Age* of May 13.

* * * *



The Victorian Government Railways of Australia Has Recently Completed This All-Steel, Air-Conditioned Buffet Car for Service on Its Through Trains

Is Head-End Train Power Coming Back?

THE power requirements of a 20-car train, in which heating, lighting, air conditioning, cooking and miscellaneous services are supplied electrically, are worked out in a careful and elaborate study made by E. M. Bill and F. L. Sahlmann, transportation department, General Electric Company. The power requirements of each service is calculated quantitatively.

The need for making such a study is emphasized by the authors, in substance, as follows: During the past 10 years, the railroads, in an effort to build up their passenger business, have introduced many innovations, which have required the use of electricity to furnish additional passenger comfort and convenience. As a result, the electrical load on cars is many times what it was only a few years ago. Air conditioning has increased the electrical load from two to seven times, depending upon the type and capacity of the system used. Car lighting loads have been increased by the demand for better illumination, and even with the introduction of the more efficient fluorescent lamps, the lighting load is likely to be greater. The use of electric water coolers, refrigerators, toasters, curling irons, electric razors, radios and other electrical accessories is almost certain to be increased. On a recently-built streamlined train, electric heating is used for the fresh air supply for all cars and furnishes all heat for the last car. The growing demand naturally brings up the question of whether or not it may be more desirable to employ power generated in an auxiliary electric power car.

When air conditioning with 20-kw. generators came into general use, many an engineman complained that his locomotive seemed to lack its usual "pep." Actually the apparent lack of power was not due to any locomotive defect, but to the increased train resistance caused by the air conditioning (this is shown graphically in Fig. 1). The head-end electric system has been tried in the past and abandoned principally because of its inflexibility. Because of changes in the nature of the electrical load and its great increase in magnitude, together with improvements in prime movers, such as turbines and Diesel engines, the problem is no longer the same as it was. Head-end power supply is in universal use for air brakes as well as for steam heating, and the problems presented by its transmission through the train are more difficult than for electric power. Because it is relatively easy to supply a train with a highly efficient electrical transmission and distribution system, the question is asked "Why not supply all the train auxiliary services electrically from the head-end?"

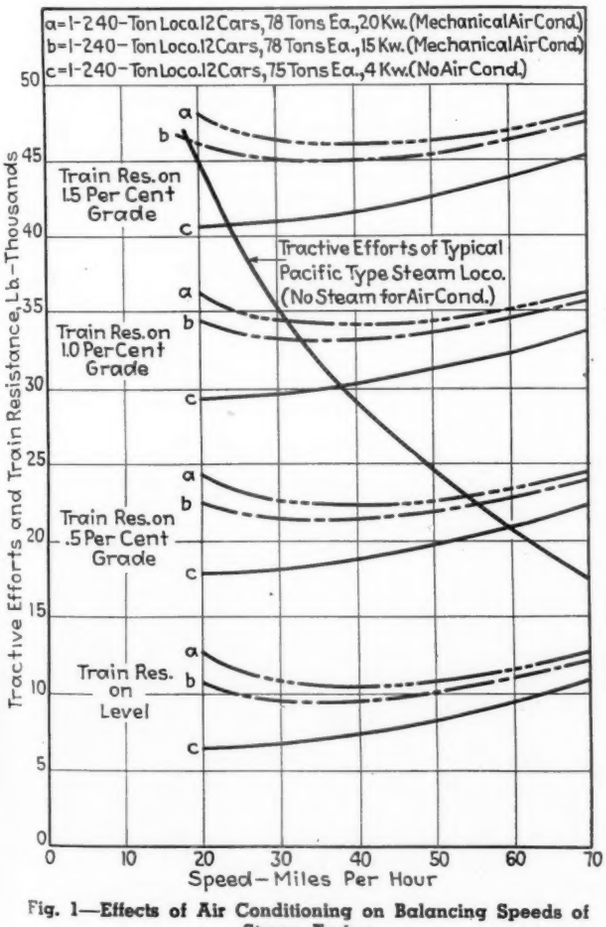


Fig. 1—Effects of Air Conditioning on Balancing Speeds of Steam Trains

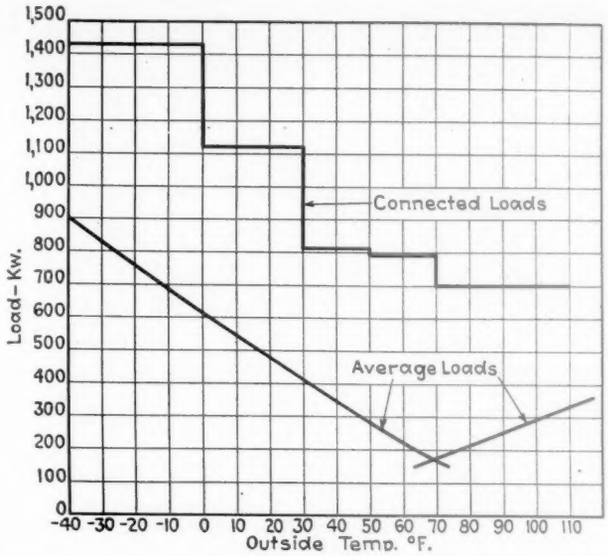


Fig. 2—Connected and Average Loads for All Electrical Services on 20-Car Train

From this beginning the authors make up an assumed train consisting of a power car, a baggage car, a mail car, a combination dormitory and bar car, five coaches, one diner, nine sleepers and one observation and buffet car. The electric power plant in the power car furnishes all train services except traction power and air brakes. In addition to heating, cooling, cooking and profuse lighting, the electric power is used to supply hot water, prevent storage tanks from freezing, cool drinking water and operate refrigerators in the diner and numerous other electrical appliances. Calculated peak loads for winter and summer service are shown in the table, while connected and average loads are shown in Fig. 2. It is suggested that the train line consist of a 3-phase, 60-cycle, 2300-volt circuit. The necessary power could then be carried by three No. 4/0 conductors.

The authors* conclude by saying "It is recognized that the proposal to consider installed capacities of 1400-kw. and voltages of 2300, 3-phase, 60-cycle on our passenger trains is somewhat radical, possibly heretical.

"Many pencils will be worn out, much paper will be covered with figures and many more sketches will be made before such an installation becomes a reality.

"It is not represented that it can be expected that such an installation should be considered on standard inter-

* The full text of the paper is published in the May issue of *Railway Electrical Engineer*.

change equipment immediately. The air brake was not applied to all equipment overnight, neither were the old link-and-pin couplers retired as quickly.

"The initial installation of the all-electric train services from a head-end power set probably will occur on a unit train, made up of cars that can be used in interchange service with the present standard equipment.

"The principal purpose of setting down the probable demands of all electric train services is to present to the railroad industry the story of what it means in power, voltage and copper sizes. With it is made the plea that appreciable margins be taken at the outset in voltage and copper sizes so that with future growth, the standards established can endure and the benefits of those standards be enjoyed for years to come."

Peak Loads for Winter and Summer

	Winter—40 Deg. F.					Summer—110 Deg. F.				
	Connected	Yard Peak	Av. in Service	Assumed % Load Factor	Kw. Hrs./Day	Connected	Yard Peak	Av. in Service	Assumed % Load Factor	Kw. Hrs./Day
Ventilation.	27.0	27.0	27.0	100	648	27.0	27.0	27.0	100	648
Heating or Cooling...	950.5	950.5	776.4	81	18,650	227.2	227.2	227.2	100	5,020
Water Heating.....	272.0	272.0	34.2	12½	820	272.0	272.0	30.9	11	740
Water Tank Protection.	13.8	13.8	2.8	20	67	—	—	—	—	—
Lighting...	84.0	84.0	42.0	50	1,005	84.0	84.0	25.2	30	603
Water Coolers...	3.2	3.2	1.6	50	38	3.2	3.2	1.6	50	38
Food Preparation....	84.3	55.0	18.4	33	442	84.3	55.0	18.4	33	442
Total....	1,434.8	1,405.5	902.4	—	21,670	697.7	668.4	330.3	—	7,491

Terminal Interchange by Truck*

By Wade T. Childress†

THE present recognized rail terminal areas must be expanded to coincide with the much larger "transportation terminal areas" which have been brought into existence through the change in transportation methods within the last two decades, if the railroads have a sincere desire to advance their position in the movement of l. c. l. freight.

What may aptly be called "terminal transportation areas" have grown up around our major metropolitan centers within the last few years almost without our realizing what has taken place. These areas are no more identical with the rail terminal areas which continue to be used as a basis of rail transportation planning than are the presently perfected high-powered motor trucks comparable to the converted wagons which became the first truck semi-trailers to be used by Columbia Terminals in the interchange of freight between railroad terminals back in 1917.

Enlarged Zones

It is unnecessary for me to point out at any great length the extent to which the zone of influence of our metropolitan areas has continually pushed farther and farther out. The "terminal transportation areas" are not to be confused with the expanding retail trade areas. They arise by reason of a very different circumstance. To illustrate—many of us still think of secondary cities, located some 50 or 75 miles away from the main trading center, as separate communities insofar as rail transportation is concerned. Our switching limits do not take in these territories. As a general rule, they fall under a different rate grouping from the central city; yet, whether we want to admit it or not, these areas have, in fact, become a part of our modern "transportation terminal area."

Today the manufacturer in Alton, Ill., is in fact as much a part of the "terminal transportation area" of St. Louis as is the industry located across the street from the freight station in St. Louis. The expansion of highway trucking activities has brought about this result. A merchant in Oklahoma decides that he needs a certain commodity in a hurry, and finds that the particular make he desires is available at Alton. His order telephoned or wired to Alton at noon today can be picked up by a highway carrier and delivered to him at some remote Oklahoma point the following morning at exactly the same time as it would be delivered if it had moved from the larger and more readily accessible St. Louis metropolitan area. This illustration can, of course, be multiplied at every large city and in almost every direction from such city. The tendency of modern manufacturing enterprises to decentralize has added impetus to this movement.

Terminal Costs

No lengthy discussion is needed to prove that it is impracticable for the railroad to expedite movements of this character to the point where they will be on an equal basis with the service made available through line haul truck operators, so long as the freight remains on the rails. The time and expense involved in the movement of l. c. l. traffic through congested rail terminal areas is well known to railroad men. As far back as 1928 it was generally agreed that 75 per cent of the cost of moving an l. c. l. shipment between 200 and 400 miles by rail was taken up by the cost of terminal transfer and handling. The proportionate cost has not decreased.

The railroads must prepare themselves to serve the needs of this enlarged "terminal transportation area" adequately or they cannot hope to enjoy participation in much of this traffic. Furthermore, they must do so economically, or participation in the traffic would be inadvisable. The answer is the use of highway transportation, co-ordinated with rail service, to concentrate the traffic from the outskirts of the "terminal transportation area" to the center of the area for movement to points beyond by rail.

Some of the railroads have been experimenting in this type of movement and Columbia has participated in the development of this service, but we have only scratched the surface. We can foresee the possibility of entirely circumventing the expense and delay involved in terminal transfer by the removal of a great portion of the l. c. l. movement from the necessity of passing through the congested terminal, with its costly handling and inescapable switching delays. Too little has been done in the direction of developing the movement of l. c. l. freight directly out of our congested business areas to outlying points where it can be handled expeditiously and cheaply. We can visualize the possibility of developing a two-way haul, something which, of course, greatly reduces costs.

* From an address delivered before the Western Railway Club at a recent meeting in St. Louis.

† President, Columbia Terminals Company.

The development of other means of rail-highway co-ordination possibilities include the use of motor trucks in the movement of freight between freight stations of different railroads, a movement which has been carried on to a high degree in the St. Louis area where the Columbia Terminals Company, co-operating with the eastern and western railroads, blazed the trail for the use of the motor truck in terminal interchange to the point where on one day in 1929 Columbia handled over 8,000,000 lb. of railroad freight in a total of 751 truck or trailer loads.

In the early days before the truck, there was no choice as to manner or method of co-ordination. The only competitor encountered by the horse dray was the wheelbarrow. This situation necessarily limited the sphere of co-ordinated activities to a comparatively small area because of the physical limitations of the horse-drawn vehicle. One lesson of importance to the economics of highway transportation was learned from the use of the horse drawn dray; i. e., don't tie the motive power inseparably to the load carrier. From the experience gained in the value and economy in unhitching horses and transferring them from one wagon to another comes the modern idea of the tractor and the semi-trailer, a method of operation which has been pioneered and used extensively by Columbia.

Four points have been set forth as possibilities in the field of rail-truck co-ordination in terminal areas:

1. The use of the motor truck in place of freight car service between freight stations on different railroads which have a steady interchange of l. c. l. business.
2. The use of the motor truck to replace freight car service between main freight stations and sub-stations located in metropolitan areas.
3. The use of the motor truck to be substituted more extensively for trap or peddler car service between freight stations and industries in terminal districts.
4. The use of the motor truck as a carrier of freight to consolidating stations located just outside of the busy terminal districts.

Communications . . .

Our Welsh Friend Has Got Us All Wrong

LONDON

TO THE EDITOR:

In an editorial of the December 31 issue of the *Railway Age*, there appeared the following paragraph:—"If we were Mr. Hitler or Mr. Stalin or Mr. Mussolini no single fact would give us quite so much assurance that our political philosophy was right and that the democratic ideal was erroneous as the failure of the American government to deal comprehensively with the wasteful mess of its transportation machinery."

If there is one single index to railroad efficiency of management and the success of a nation's transportation policy, it is the figure of operating ratio. The following table is self-explanatory, and completely contradicts the statement that Mr. Hitler and Mr. Mussolini have succeeded in solving the transportation tangle any better than the democratic nations have; indeed, this is the sphere in which they have failed dismally as measured in terms of finance. Mr. Stalin's results are, unfortunately, not known.

OPERATING RATIO

	1934 %	1935 %	1936 %	1937 %
Class I Roads, United States	75	75	72	75
Four British Railways	80	80	79	79
German National Railway	99	96	88	90
Italian State Railways	107*	..	90*	81*

* Fiscal years, not corresponding with calendar years.

LLENROC

[We did not, of course, even imply that the railways of Germany, Russia or Italy were more efficiently operated than those of this country. But despite the operating efficiency of the American railways, they are impoverished by political ineptitude and obstructionism, fostered by predatory rivals.

It is not the competition of the *industries* in the dictator countries that the democracies need fear—but the ability of those countries to arrive quickly at effective political decisions.

It is a part of the democratic dogma that all shades of opinion be given a hearing—but, if democracy is to be effective, this freedom must be exercised with some self-restraint. That is to say, persons and interests enjoying democratic freedom must use it to the social advantage and not primarily to defend selfish privileges against society. Failure to exercise freedom in the social interest—an indictment which political opponents of a square deal for the railroads cannot escape—is bound to put a democratic country in a bad light in comparison with dictator countries.

Believers in democracy, it seems to us, owe it to themselves to exercise their freedom with moral restraint; and they ought to put all the social pressure they can on the mischief-makers who use democratic institutions as an easy means to private plunder.—EDITOR]

Another Ellybache Against Train Radios

CHICAGO

TO THE EDITOR:

Much praise is due the railroads for the improvement in passenger equipment, such as the streamliners, which I ride very frequently. Am wondering however why they seem to feel it necessary to have a radio blaring away in practically every club car and lounge car, as well as in the diners.

Is it because the class of person who uses the latest streamline equipment cannot get along without a radio all the time he is resting, reading or eating? Is it because such people have a radio turned on every minute of the day when they are not on a train?

I have gotten on streamliners repeatedly in the expectation of enjoying the club car of latest design—to find a radio blaring away and a majority of the passengers disgusted with the drivel. I have had to stay out of the lounge car in order to do a little reading or concentrate upon matters of importance to me and have then gone to the diner for other important matters to find a radio blaring away to bother, I dare say, 90 per cent of the diners.

If a passenger has the temerity to turn the radio off a porter will invariably turn it on again and the conductor doesn't seem to know anything about it, whether it should be on or off.

The radio is, in a general majority of cases, used simply for the edification of the porter who seems to be pleased, regardless of what the program is, and I do not think it fair that paying passengers should *have* to listen to *any* radio if they would rather have peace and quiet, such as they have when not on a train. Why should they want to listen to drivel just because they decided to take a trip by train?

If a radio must be available on every car on a new train why not put it in a separate sound-proof compartment where those who want it can have it without bothering others whom it disgusts?

The lack of a radio on a train is less serious than the presence of one. How about it?

PAYING PASSENGER

NEWS

Hike Ditch Dole To Big Business

Committee doubles canal projects, soaking taxpayers to float more big business barges

Seventy-three rivers and harbors projects with an estimated total cost of approximately $132,000,000 would be authorized by the substitute rivers and harbors bill (H. R. 6264) which has been reported favorably in the House of Representatives by its committee on rivers and harbors. The bill supersedes H. R. 5753 (reviewed in the *Railway Age* of April 22, page 709) which would have authorized 60 projects with an aggregate cost of $69,000,000. It carries no appropriations for the projects which it authorizes; funds for this work are provided in the War Department civil functions appropriation bill and allotments are made by the Chief of Engineers.

Six of the 13 projects which H. R. 6264 adds to the program originally proposed in H. R. 5753 account for more than $61,000,000 of the $63,000,000 added to the estimated total cost. They are: Umatilla Dam on Columbia River, $23,700,000; waterway to connect Tennessee and Tombigbee rivers, $12,500,000; Connecticut river between Hartford, Conn., and Holyoke, Mass., $12,344,000; Warrior and Tombigbee rivers, $6,750,000; Houston Ship Channel, $3,696,300; Wrangell Narrows, Alaska, $2,731,000.

Appropriations aggregating $96,000,000 for maintenance and improvement work on rivers and harbors are carried in the War Department civil functions appropriation bill for the fiscal year ending June 30, 1940, which was passed by the House of Representatives on May 15. The comparable figure for the year ending next June 30 was $70,020,000, although there has also been available in the current year a reappropriation amounting to $24,000,000 and $18,000,000 transferred from Works Progress Administration funds.

In approving the $96,000,000 appropriations the House acted to exact payment in advance on a Presidential assurance that $50,000,000 of the money to be appropriated for fiscal 1940's work relief program would be allocated to flood control and rivers and harbors projects. The 1940 budget estimate for rivers and harbors work was $71,000,000—$41,000,000 for maintenance and $30,000,000 for improvements. This $71,000,000 was in the bill as reported last week by the committee on appropriations which in a last-minute session rejected its sub-committee's plan whereby the $50,000,000 which the "assurances" said would be forthcoming from the relief funds would be put into the bill ($25,000,000 for rivers and harbors work and $25,000,000 for flood control) and later deducted from the bill carrying the relief money. After considerable debate, which forced postponement of the vote on the bill itself until this week, the House, over the opposition of the Democratic leadership, took the $50,000,000 in advance. Half of it was added to the rivers and harbors money, bringing the above-mentioned total of $96,000,000, while the other half augmented the flood control appropriation which finally emerged as $172,000,000.

Another change in the bill as reported was made when the House adopted the amendment offered by Representative Alexander, Republican of Minnesota, to eliminate the provision which would have prohibited the expenditure of any part of the appropriation "for any work upon or incident to the project to extend the channel of the Mississippi river above St. Anthony falls."

But, George, What Are the Railroads Going to Use for Money?

"We have made sufficient progress mechanically, scientifically and in the technique of management, along with increased efficiency of the average worker, to justify without contention the immediate establishment of the basic six-hour day without reduction in compensation."

He also declared for annual vacations with pay for all workers.

—George M. Harrison, speaking to the B. of R. C., as reported in "Labor."

Status of R. F. C. Rail Loans

The monthly financial statement of the Reconstruction Finance Corporation as of March 31 shows disbursements to railroads (including receivers) of $633,801,661 and repayments of $194,241,375.

Arkansas Intrastate Rates

The Interstate Commerce Commission in a decision by Commissioner Miller has found that no unjust discrimination against interstate or foreign commerce results from the refusal of the Arkansas Corporation Commission to permit the application of the Ex Parte 123 increases to Arkansas intrastate carload rates on petroleum and its products, asphalt, forest products taking other than lumber rates, silica, sand in box cars, brick, and cotton, l.c.l.

No Humane Limit On Truck Hours

I. C. C. decides law permits it to regulate truck conditions only to promote safety

The Interstate Commerce Commission has decided that its authority to prescribe qualifications and maximum hours of service of common and contract carriers by motor vehicle under the Motor Carrier Act's section 204(a) (1) and (2) is limited to prescribing such regulations for those employees whose activities affect the safety of operation of motor vehicles. Disposing also of the question of the extent of its power to prescribe maximum hours of service for employees engaged in interstate private trucking, the commission found that the "precise wording" of section 204 (a) (3) leaves no doubt that its power thereunder is likewise limited to employees whose activities affect safety of operation.

The decision is in the Ex Parte No. MC 28 investigation instituted last year, because, among other reasons, of "the existing confusion among motor carriers and their employees due to the recent enactment of the Fair Labor Standards Act." Commissioner Rogers dissented, asserting that he is convinced "that as a matter of law the Motor Carrier Act confers jurisdiction on this Commission over the hours of service of all employees of common and contract carriers, in language which is so clear and unambiguous that it is not open to the construction given it in this proceeding." Commissioner Lee agreed with Mr. Rogers, while Commissioner Alldredge's concurrence in the result of the majority decision was noted. Commissioner Aitchison did not participate in the proceeding.

The report points out that representatives of common and contract carriers, with one exception, asserted that the commission's jurisdiction extended to all their employees; while the representatives of organized labor contended that such power was limited to employees whose activities affect safety of operation. In leading up to its acceptance of the latter view the commission reviewed the legislative histories of the relevant Motor Carrier Act provisions and of the Fair Labor Standards Act. Amidst such discussion was reference to a pertinent phrase of the section the commission was interpreting which phrase reads: "Qualifications and maximum hours of service of employees." Here the commission thought it necessarily fol-

(Continued on page 886)

Charges Shippers Squeeze Trucks

Pennsylvania regulator sees shippers' half-Nelson on small trucks; wants independence

Charges of widespread "chiseling" in the trucking industry "under determined and heavy pressure" by large shippers were enunciated by Richard J. Beamish, member of the Pennsylvania Public Utility Commission, at a joint conference of motor truck and railroad representatives of the commonwealth held in Harrisburg on May 12. The transportation men were holding the fourth in a series of "harmony" meetings held from time to time since the first of the year in an effort to bring about some order in the rate structure in the state. The first of these meetings was described in the *Railway Age* of January 28, page 199.

Commissioner Beamish read a statement before the conferees in which he likened the present-day situation in the trucking industry to the early days of "rate cutting and secret rebating" before the Hepburn Act forbade such practices in the railroad industry. Said he: "The comparatively sudden and amazing increase of motor vehicle transportation on the highways of the nation has produced a condition similar to that in which the railroads found themselves prior to 1906. The same big shipping interests that dominated rail transportation and forced rate cutting and rebates are now attempting to block efficient and equitable regulation of truck transportation. They are playing truckers against each other and in many cases have succeeded in bringing down rates below the compensable deadline. They are arraying truck transportation against rail transportation and pitting the small trucker with his inexperience and his desperate economic needs against large truck companies whose affairs are well managed."

Mr. Beamish also expressed the belief that the trucking industry has "been foolishly induced to over-extend itself." He cited examples of "slip-shod conduct" of truck operations in which operators reduced their rates below the possibility of a remunerative return. He also pointed out that the Pennsylvania regulatory commission is burdened by constant tariff revisions in competitive rate reductions between the carriers. He called for an end to this condition, believing that the country needs both the railroads and the trucks operating on a compensatory rate base, and asked his hearers, representing the two transportation agencies, "to work out a fair basis for agreement which may be presented not only to this commission but to the Interstate Commerce Commission and to the regulatory commissions of all the states."

In a more informal discussion later in the meeting the commissioner further extended his remarks to refer to motor-truck haulers of petroleum as dominated by the shippers who "hold a loaded gun" and "compel the truckers to say to this commission they they do not want rate regulation." He charged that the Pennsylvania Motor Truck Association is dominated by shippers and asserted that "unless the truckers decide now to stand upon their own feet they will rue the day."

The motor truck representatives presented to the railroad committee a statement to the effect that they would agree to base their rates upon the National Motor Freight Classification, together with certain exceptions already agreed upon, and asked that the joint committee look over classifications, exceptions and commodity rates and report thereon.

Brookings Spotlights Flaws in U. S. Tax Policies

The chain stores get off easy in taxation (3.2 per cent of gross income) because they own so little real estate in proportion to the volume of business they do. Similarly, various manufacturing enterprises also escape the taxgatherer with comparatively little damage done them. But the businesses which own a lot of property in proportion to the gross business they do get a good trimming (railroads, 7.4 per cent of gross and electrical utilities almost twice that proportion).

These facts are revealed in a 64-page study, prepared for the Brookings Institution, Washington, D. C., by Professor James D. Magee of New York University and entitled "Taxation and Capital Investment."

This booklet is as handy a compendium as there is, of the essential facts of taxation in its blighting effect on industrial recovery—and every railroader who has to do any public speaking will welcome it as a ready reference. Professor Magee shows up the increased government expenditures which have gone into so-called "improvements"—most of which are not, properly speaking, "assets," since they yield no revenues.

The main concern of the study, however, is not how government has spent the money—but how it is collecting what it spends. The conclusion is that a government which needs as much money as ours does, certainly ought not to lay its burdens about in a manner calculated to dry up the source of its revenues. But that is exactly what our taxgatherers have done—and the study shows how, and what steps are needed to correct their folly.

Auto Rate Hearing Transferred to Detroit

The Interstate Commerce Commission has transferred from Chicago to the Hotel Fort Shelby, Detroit, Mich., the June 13 hearing in connection with the investigation of rail, motor and water rates on new automobiles now being conducted by the commission in cooperation with the United States Maritime Commission. Examiners Disque and Lawton remain in charge of the proceeding.

Willard Asks For Chandler Measure

Thinks roads will come back but wants to avoid the "disgrace" of a bankruptcy

After listening to a plea by Daniel Willard, president of the Baltimore & Ohio, that the Senate interstate commerce committee favorably report the Chandler voluntary rail reorganization bill in order that he be saved the "disgrace" of bankruptcy for his road, Chairman Wheeler closed the public hearings on the measure on May 12. After pointing out that the road had earned its fixed charges for nearly 40 years, the B. & O. president told the committee that he believed the road and the industry would come back again despite the low earning record of the past nine years.

He also said that during the past 30 years the road had spent some $480,000,000 for improvements in the property and purchases of stock of other companies which, under the Interstate Commerce Commission's plan of consolidation, were to be included in the greater B. & O. system. At this point he expressed the view that he had never been "keen" for consolidation, believing that the present B. & O. system was sufficiently large to keep its president busy.

Mr. Willard explained the B. & O.'s voluntary plan of debt adjustment which has been approved by 85 per cent of the bondholders of the road. He went on to tell the committee that because of the fact that certain trustees of estates which hold bonds of the road are not permitted to change the terms of the bonds held, the road needed this type of legislation to give legal effect to the debt adjustment plan. Also, he said that there were certain creditors who always make trouble and would not agree to any plan because of the fact that they would try to hold out and create a nuisance value by forcing the company to pay them the full amount of their bonds in order to get their consent. The pending bill would give the majority power to bind a small minority which might refuse to go along with the plan.

According to Mr. Willard, the plan provides that before the company can resume the payment of dividends, it agrees to pay off $100,000,000 of fixed debt. He told the committee that he was not interested in the details of the bill, but only the ultimate passage of it to permit the road to salvage the large amount of work already done on the plan.

Col. Henry W. Anderson, special counsel for the B. & O. in its debt-adjustment case, testified briefly, telling the committee that he and Judge R. V. Fletcher, vice-president and general counsel for the Association of American Railroads, drafted the present Chandler bill. He made it clear that he would be willing to have the bill specify that it had nothing to do with roads now in reorganization but that it was intended to stave off trusteeship by allowing a road to enter into a voluntary agree-

(*Continued on page 886*)

It Costs Money To Hurt a Man

Faricy says tendency is to soak employer for every injury, and in growing sums

Safety in the mechanical and maintenance of way departments of the railroads was the major topic of discussion at a regional safety meeting of the Safety Section of the Association of American Railroads held in conjunction with the Seventeenth Annual Midwest Safety Conference at Chicago on May 10. Among those addressing the meeting were W. T. Faricy, general solicitor of the Chicago & North Western, who spoke on Employer Financial Responsibility for Accidents to Employees; C. M. House, superintendent of motive power and equipment of the Alton, who spoke on the Mechanical Department's Responsibility in Accident Prevention; G. M. O'Rourke, district engineer of the Northern Lines of the Illinois Central, who spoke on Safety Promotional Work in Railroad Maintenance of Way and Structures; Warren E. Fuller, assistant to the vice-president, traffic department, of the Chicago, Burlington & Quincy, whose subject was Safety's Contribution Economically and Socially; and W. H. Emerson, general master car builder of the Elgin, Joliet and Eastern, who talked on Safety in the Car Department.

Mr. Faricy discussed laws governing accidents to employees, showing how, during 35 years, the common law of master and servant under which the employer's liability was narrow has developed into present laws under which, if an employee is injured or killed in the course of his employment the employer or his insurance company pays medical, surgical and hospital bills or funeral expenses as the case may be, and a weekly allowance to the injured man during the period of his disability or to his widow and orphans up to a certain prescribed amount. As a result, he said, the prevention of an accident today means a lot more money than it did 35 years ago. In Wisconsin, for instance, he continued, where the North Western became subject to the State Workmen's Compensation Act in 1917, the weekly compensation indemnity then required by the act was $9.75. That was the maximum weekly payment required at that time for any one injury. Now the maximum has risen to $21 a week. As of that time, the maximum indemnity provided for an injured man thirty-five years of age was $7,605. At the present time, an employee of that same age, injured under the same circumstances, may recover up to a maximum of $38,220.

At present, he said, there are pending in Congress several proposals which would further amend the Federal Employers Liability Act in favor of the employee and give rights of recovery to injured persons in many cases where none exist under present law. Some of these bills have already been reported favorably by committees and, if they pass, their inevitable effect will be to increase further the amounts payable for personal injuries. "I am not so sure," he continued, "that within the lives of some of us here today we shall not see a congressional enactment which will impose on the railroads the absolute duty of compensating, on some basis, all railway employees injured in line of duty, regardless of the circumstances of the accident. Such a statute might be wise legislation if the amounts named in the act were reasonable and if they were less than the man would make if working, thereby removing the temptation to prolong the effects of the accident."

Mr. House discussed the safety movement on his railroad, which resulted in a record of no federal defects reported by Interstate Commerce Commission inspectors on locomotives so inspected for a period of two fiscal years. He emphasized the need for discipline. On the Alton, he said, when an accident occurs, whether reportable or non-reportable, the man involved is immediately called by the foreman for investigation. Unless he can show good explanation for the injury, his personal record is assessed with discipline. It is seldom, he continued, that the same employee is responsible for a second reportable accident, indicating there is profit in experience.

"Safety educational work to be successful," according to Mr. O'Rourke, "must come down from the top. The great mass of men follow leaders. They may protest against the fact, but they do it all the same, for they cannot help it, and when we pass judgment on the employee, we are obliged to inquire what kind of an example has been set him by his employer." He stressed also the effectiveness of friendly competition as a stimulus for good safety records.

Trainload-Rate Tariff Filed With I. C. C.

Sometime before June 7 the Interstate Commerce Commission will be called upon to decide whether it will permit the Illinois Central and the Missouri Pacific to make effective trainload rates as a means of meeting water competition. These carriers have filed tariffs publishing a rate of 14 cents per 100 lb. on blackstrap molasses when shipped in minimum quantities of 1,800 net tons in tank cars from New Orleans, La., to Peoria, Ill., and Pekin. Protestants of the tariff have translated the minimum into 40 tank car loads, adding that such an output would come only from large operations with the result that the rate would be of the type "promoting the large as against the small producer" in contravention of the Interstate Commerce Act, particularly section 3.

In the past the commission has indicated its opposition to trainload rates on the ground that such rates could be utilized only by a relatively few shippers with resultant discriminations and preferences against smaller shippers.

Plan Would Split M. & St. L. in Two

Revamp plan divides road into primary and secondary lines separately operated

The 1,520-mile Minneapolis & St. Louis, in receivership since July, 1923, would be split into two new separate operating companies linked by stock ownership, according to a plan filed with the Interstate Commerce Commission on May 13 by W. W. Colpitts of Coverdale & Colpitts, New York, reorganization managers of the road. The plan has been under discussion for some time with Chairman Jesse Jones of the Reconstruction Finance Corporation which would loan $5,000,000 to the new organizations backed by 25-year first mortgage bonds bearing interest at 4 per cent.

The plan presented to the Commission, filed as finance docket No. 12414, calls for division of the road into two separate operating companies chiefly to separate the more prosperous primary lines from the light-traffic properties. Technically it is a joint application by the Minneapolis & St. Louis Railway *Company*, to be known as company "A", and the Minneapolis & St. Louis Railroad *Corporation*, to be known as company "B", to acquire separately the properties of the present Minneapolis & St. Louis. All of the capital stock of company "B" would be owned by company "A" but the operation of the properties to be acquired by the two companies would be separate and distinct.

Company "A" would own and operate the present Minneapolis & St. Louis lines as follows: Minneapolis, Minn., to Peoria, Ill., with appurtenant branches; Albert Lea, Minn., to Des Moines, Iowa; Oskaloosa to Albia, Iowa; Oskaloosa to Tracy, Iowa, and Hopkins to Winthrop, Minn. Company "B" would acquire and operate the lines Winthrop, Minn., to Leola and Akaska, S. D., and Winthrop, Minn., to Tara, Iowa. The present M. & St. L. receiver has petitioned the court to apply for abandonment of all lines west of Watertown, S. D. "A" company under the plan would acquire a total of 968 route miles of line and take over properties and equipment valued by the Commission at $43,656,133 as of June 30, 1917. "B" company would acquire a total of 556 route miles of line and operate property and equipment valued by the Commission at $13,176,635, as of June 30, 1917. Net cost of additions and betterments made after the date of valuation is placed at $1,822,359 for the property to be acquired by "A" company and at $906,892 for "B" company.

The application proposes that $5,000,000 of new money be borrowed from the Reconstruction Finance Corporation, of which, if the corporation approve, some $2,978,000 would be used for additions and improvements to the lines already suggested by the R. F. C., and $2,022,000 would be applied to the purchase of the present M. & St. L. property. About $200,000, it is estimated, would be needed to pay dissenting bond holders who elect to receive

cash instead of stock in the new company and for out-of-pocket expenses in connection with the organization; and about $350,000 would go into the treasury of the new company. This loan would be secured by a general 25-year mortgage

How Tentative Plan Would Divide Minneapolis & St. Louis

bearing fixed interest at 4 per cent and providing for a sinking fund of ½ per cent, to be increased to 1½ per cent after five years.

Second mortgage 4 per cent income bonds would be issued to holders of the Merriam Junction-Albert Lea bonds, and to preferred creditors in payment of claims totaling $3,091,000.

The plan provides that "A" company issue 150,000 shares of capital stock of which 120,000 shares would go to the holders of six bond issues under the present mortgages in foreclosures against the old company, the face value of whose bonds aggregate more than $44,000,000. The remainder would go to present protective committees.

The sole capitalization of "B" company would be the issuance of 10,000 shares of no-par stock, all of which would be purchased and held by "A" company. Thus it would have no funded or short term debt and would be owned outright by the stronger "A" company.

It is proposed that "A" company purchase all the property of the present Minneapolis & St. Louis at a foreclosure sale pursuant to court proceedings. The plan gives consideration to all classes of creditors of the old company except the holders of general claims and stockholders, who would receive nothing. If the bid is accepted, in consideration of payment of a part of preferred claims in cash and the balance in second mortgage income bonds, all properties of the old road would be conveyed to the two new companies free of all debts of the old company except equipment trust obligations aggregating $816,000.

An agreement between "A" and "B" companies provides that each will afford preferential treatment to the other with respect to traffic; that the agreements of the General Managers' Association of Chicago shall govern as to joint facility bills and equipment rentals that settlement for freight car hire will be made on the regular interchange basis; that divisions of rates on interline traffic be made on a straight mileage prorate. It is expected that officers would be joint for both roads, but would be employed by "A" company and hired by "B" company on a cost basis.

Fan Trip

The Southern Pacific will operate a special excursion for the Railway & Locomotive Historical Society out of San Francisco, Cal., on May 28. The special train will run to Watsonville via San Jose and Santa Cruz, returning via Redwood junction and Niles. The fare has been set at $2.50.

New Train for C. B. & Q.

A new train the "Overnite Denverite" will be placed in service between Chicago and Denver, Colo., by the Chicago, Burlington & Quincy on June 10, to handle the overflow business of the Denver Zephyr. The new train, consisting of a steam locomotive, standard chair cars, sleeping cars, a dining car and an observation lounge car, will operate on the same schedule of sixteen hours as that of the Denver Zephyr, leaving Chicago at 5:15 P. M. or 15 minutes before the Zephyr.

Hearings Begun on Railroad Bridge Bill

A subcommittee of the Senate committee on commerce headed by Senator Lee, Democrat of Oklahoma, began hearings on May 17 on S. 1989, the bill providing for the payment by the federal government of a certain part of the expense of rebuilding railroad bridges over navigable streams to conform to the orders of the War Department. Judge R. V. Fletcher, vice-president and general counsel for the Association of American Railroads, testified in support of the measure, pointing out to the committee that the bill was recommended by the President's committee-of-six in its recent report on the status of the railroad industry.

The Secretary of War, in a letter to the committee, has stated that he can see no grounds to warrant the assumption by the federal government of the expenditures proposed in the bill. Similar sentiments have been voiced by the Secretary of Agriculture. The bill, which was introduced by Senator Truman, Democrat of Missouri, by request, provides that the cost of alterations of a bridge shall be apportioned on the basis that the bridge owner shall bear such part of the cost as is attributable to the direct and special benefits which will accrue to the bridge owner as a result of the alteration, and the United States shall bear the balance of the cost.

New Haven to Operate Fold-Boat —Camera—Cycle Train

The New York, New Haven & Hartford opens its Spring excursion season with a combination fold-boat, camera and cycle train out of New York on Sunday, May 21. The train will leave Grand Central terminal, New York, at 8:25 a. m. D. S. T. and will proceed to Falls Village, Conn., in the Housatonic Valley. Cycle routes have been laid out and carefully marked and the roads will be patrolled. The train is scheduled to arrive back in New York at 10:10 p. m.

Second Section of Streamliner City of Denver

The Chicago & North Western—Union Pacific will place a new Chicago-Denver train in daily service on June 10, to be known as the second section of the Streamliner-City of Denver. The train, which will operate during the summer, will be hauled by a steam locomotive on the same westbound schedule as that of the City of Denver. On the same day, the eastbound schedule of the Columbine will be changed to permit departure from Denver at 8 p. m. instead of 7:30 p. m. and arrival in Chicago at 4:20 p. m. instead of 7:50 p. m.

Payments Under Retirement Act

The Railroad Retirement Board during April certified to the Treasury total vouchers amounting to $9,130,100.45, including retroactive payments and adjustments for cancellations, according to the May 10 issue of the weekly review issued by the Board's Bureau of Economics. The foregoing figure brought the total from the beginning of payments to April 30 to $176,167,719.52, of which $88,569,200.47 was paid in the first ten months of the current fiscal year ending June 30.

Payments under the Retirement Act on April 30 were being made on 129,779 claims, at the rate of $8,124,472 a month.

New York Harbor Marine Services

The Interstate Commerce Commission has issued an order in the No. 28204 proceeding, involving New Jersey's complaint about lighterage free delivery services in New York harbor, directing the railroads serving New York to file on or before June 15 certain special reports regarding their marine operations at that point. Ten ques-

tions are directed to the respondent railroads. They seek data on such matters as the tonnage of freight lightered by the roads themselves, for them by outside lighterage concerns or on which an allowance was paid to shippers or others, the tonnage afforded carfloat service; a description of marine equipment operated by defendants in the harbor; and a statement of divisions of joint rates on a specified group of commodities.

Freight Car Loading

Loading of revenue freight for the week ended May 13 totaled 555,396 cars, the Association of American Railroads announced on May 18. This was a decrease of 17,461 cars, or three per cent, below the preceding week, an increase of 13,588 cars, or 2.5 per cent, above the corresponding week in 1938, but a decrease of 214,164 cars, or 27.8 per cent, below the same week in 1937.

As reported in last week's issue, the loadings for the previous week ended May 6, totaled 572,857 cars, and the summary for that week, as compiled by the Car Service Division, A. A. R., follows:

Revenue Freight Car Loadings

For Week Ended Saturday, May 6

Districts	1939	1938	1937
Eastern	132,069	118,587	170,450
Allegheny	105,618	99,418	162,849
Pocahontas	13,672	31,203	48,108
Southern	91,332	86,419	102,389
Northwestern	81,446	65,952	124,511
Central Western	102,488	90,093	104,168
Southwestern	46,232	44,477	51,020
Total Western Districts	230,166	200,522	279,699
Total All Roads	572,857	536,149	763,495
Commodities			
Grain and Grain Products	34,019	32,549	27,093
Live Stock	13,875	13,060	13,938
Coal	60,736	77,213	112,090
Coke	5,368	3,873	10,197
Forest Products	30,127	25,809	37,146
Ore	16,612	7,884	72,014
Merchandise l.c.l.	153,803	150,750	173,377
Miscellaneous	258,317	225,011	317,640
May 6	572,857	536,149	763,495
April 29	586,015	543,089	777,827
April 22	558,706	523,748	756,248
April 15	547,816	537,585	746,523
April 8	535,470	522,049	711,079
Cumulative Total, 18 Weeks	10,395,369	9,821,301	12,940,473

In Canada.—Carloadings for the week ended May 6 totaled 52,777, as compared with 46,808 in the previous week and 44,856 in the same week last year, according to the weekly statement of the Dominion Bureau of Statistics.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
May 6, 1939	52,777	22,990
April 29, 1939	46,808	23,411
April 22, 1939	44,066	21,888
May 7, 1938	44,856	20,379
Cumulative Totals for Canada:		
May 6, 1939	753,893	408,524
May 7, 1938	798,449	390,491
May 8, 1937	852,621	514,136

Bills in Congress

Senator Walsh, Democrat of Massachusetts, has introduced in the Senate a bill (S. 2398) which would amend the Motor Carrier Act to restrict the Interstate Commerce Commission's authority with respect to limiting motor carriers to the handling of particular types of traffic. Similar to H. R. 5750, introduced previously in the House by Representative Holmes, Republican of Massachusetts, the Walsh bill would also amend Motor Carrier Act provisions relating to insurance required to be carried by motor carriers.

H. R. 6271, introduced by Representative Leavy, Democrat of Washington, would grant the consent of Congress to the Secretary of the Interior, the State of Washington, and the Great Northern to construct and operate a combined highway and railroad bridge across the Columbia river at or near Kettle Falls, Wash.

Pat Harrison Puts the Finger on the Spenders

"Let me say to you that your associates in the Chamber of Commerce from Mississippi, and no doubt in every other state of the Union, have played a greater part in forcing large congressional expenditures than any organization with which I am familiar.

"There isn't a project desired at Squedunk or Yellow Rabbit or Vinegar Bend, whether it be for recreational lake, playground or sanitary rendezvous, whether it be for deepening of the Oakahay, the regulation of the Tallapoosa or the creation of Rural Route No. 18, that your local Chamber of Commerce doesn't meet and resolute and frighten with the fire of your influence the congressman or senator representing that bailiwick to obtain the approval and appropriations for the project.

"Frankness compels me to admit that the difficult task of retrenchment in government expenditures cannot be accomplished without the active interest, encouragement and support of the citizens of this country. If economies are to be employed by this government, if expenditures are to be reduced, it will be because such a sentiment has been created back home and the demands made upon the Congress for such a policy."

—From a speech by Senator Pat Harrison before the U. S. Chamber of Commerce.

Freight Claims Men Will Meet in St. Louis

The annual session of the Freight Claim division of the Association of American Railroads will be held at St. Louis, Mo., on May 23-25. The Committee on Prevention of Loss and Damage is again arranging for an informal conference of field men engaged in loss and damage prevention activities to be held on May 25. This conference will encourage the discussion of prevention problems with which the field men are faced in their daily work. Another feature of the Freight Claim division's meeting this year is Prevention Day, May 24, at which the entire program will be devoted to discussions of the prevention of loss and damage. In addition to the reports of committees, the program provides for a number of speakers, including J. W. King, vice-president of the Operations and Maintenance department of the Association of American Railroads; L. W. Baldwin, chief executive officer of the Missouri Pacific, and John B. Mordecai, chairman of the Freight Claim division.

Anti-Nazists Charge Reich Barter with S. A. in R. R. Equipment

"The Hour," a bi-weekly news letter issued by the American Council Against Nazi Propaganda, Inc., states that Nazi Germany is currently engaged in a drive to place German-built railway rolling-stock on roads throughout the South American countries. In this connection it reports that some 900 cars and 64 locomotives of German manufacture, representing about two million dollars' worth of equipment, are to be brought into Argentina in barter for Argentine wheat and wool. It also states that the Duke of Mecklenburg, one of the foremost Nazi agents in Latin America, recently offered a large consignment of railway rolling stock to Bolivia in exchange for copper and is currently making similar offers to other countries on that continent.

Conservative Senators Favor C. P.-C. N. Merger, Majority Opposes

Declaring that the railway problem could continue to drift "without more hardship to the taxpayer and great and imminent danger to Canada's credit," Senator Arthur Meighen (Conservative) last week presented to Canada's Senate railway committee a minority report recommending unified management of the Canadian Pacific and Canadian National as the only means of affording relief to the taxpayer.

Senator Meighen's proposal contained eight points or conditions designed to protect the public from exploitation, to safeguard the interests of labor and at the same time to make substantial savings in the operation of the two roads. He regretted that a unanimous report was impossible and also stated that the plan he proposed was subscribed to by five of his party colleagues on the committee.

One of the first objectives to be secured in his plan of unified management was to provide against the country assuming any legal or moral obligation regarding Canadian Pacific obligations or securities, also that in such a plan there could be no domination by the Canadian Pacific of the publicly-owned road, and that out of earnings up to the average aggregate earnings of both roads over an agreed period of years the Canadian National must be assured of the same share as it had enjoyed of such average earnings.

"Cooperation" between the railways was dismissed by Senator Meighen as something that might be piously hoped for but which would never produce measurable results. "The sooner the people of Canada accept the conclusion that co-operation of the two competing systems cannot be effective," the Senator declared, "in any worth while way the better it will be for the establishment of some really effective remedy and for the solvency of our country."

Senator Dandurand (Liberal) in the ma-

jority report urged on the railways more energetic measures leading to co-operative economies. He advocated appointment of a referee, in the person of the chairman of the Board of Transport Commissioners, who would iron out the difficulties which the Canadian National and the Canadian Pacific could not settle for themselves.

The committee's work had had a great value throughout Canada in enlightening the people of this country on the value to the Dominion of the C. N. R., said Senator Dandurand.

Senate Rejects Florida Canal

The Senate, on May 17, by a vote of 45 to 36, defeated S. 1100, the bill to authorize the construction of an Atlantic-Gulf ship canal across Florida. Debate on the bill which was reported without recommendation by the commerce committee, was begun in the Senate on May 12 and continued on the 16 and 17. Proponents were led by Senator Pepper, Democrat of Florida, while the opposition forces were marshalled by Senator Vandenberg, Republican of Michigan. The opponents contended that the fight was a bi-partisan one, but Senator Pepper countered by saying that the opposition to the measure was nothing more than a direct attack on the Roosevelt Administration.

Senator Vandenberg called the project a "sublimated ditch" and a "pipe dream" and went on to say that the bill was a "gigantic blank check", economically unjustifiable and equalling in cost all the money budgeted for other rivers and harbors construction in the next fiscal year.

Senator Pepper denied that the canal would affect Florida's water supply, as has been charged, and told the Senate that the railroads serving Florida had created this fear. Besides arguing that the canal would be of inestimable value to intercoastal shipping, he denied Senator Vandenberg's statement that rail traffic would suffer.

Senators Truman, Democrat of Missouri, Lee, Democrat of Oklahoma, and Mead, Democrat of New York, proposed amendments to the bill which would have directed the President to make a study to determine the rates of toll necessary to provide for the canal's maintenance and amortization over a period of years. Senators Lee and Mead's amendment would have provided for a 50-year amortization while Senator Truman's set no specific time limit.

Barriger Discusses Sources of Railroad Capital

John W. Barriger, III, chief of the Reconstruction Finance Corporation's Railroad Division, was among witnesses testifying this week at the Temporary National Economic Committee's public hearings in Washington, D. C., on the problem of savings and investment. Mr. Barriger highlighted a detailed exhibit which he had prepared to show the sources of capital that went into the railroad industry from 1921 to 1937, inclusive, emphasizing that he was undertaking merely to show what went on without any appraisal of the situation.

The sources of railroad capital, Mr. Barriger pointed out, have been the securities markets and operating revenues, the latter being the more important. Mr. Barriger's figures showed that in the 1921-1937 period the railroad industry had a total of $10,313,228,154 available for capital purposes; of this total, $7,405,834,749 or 71.81 per cent came from income, $969,717,592 or 9.4 per cent from decreases in working capital and $1,937,675,813 or 18.79 per cent from the securities market. The breakdown of the latter is: From stock, $362,332,190; from funded debt, $1,575,343,623.

In calculating the amount of capital obtained from the securities market Mr. Barriger eliminated intercorporate duplications. Also, he emphasized the fact that capital used doesn't necessarily mean that all went into new facilities—a large part was required for replacements. A measure of the latter is found in credits for property retired in which connection Mr. Barriger gave a grand total of $4,290,461,354 for the 1921-1937 period. He also discussed the relation of maintenance expenses to the physical integrity of investment, pointing out the necessity for preserving an investment's physical integrity as well as its financial integrity.

Says Freight Rates on Livestock are Highest in 17 Years

Freight rates on livestock currently are the highest in 17 years, the Bureau of Agricultural Economics reported on May 16. Rates on wheat average the highest since 1934, and on cotton the highest since 1932. Preliminary indexes of rates on the three groups of commodities appear in the May issue of the Bureau's monthly publication "The Agricultural Situation."

The current index relates to the year ending June 30. For this period it is estimated that rates on livestock will average 163 per cent of the base period, 1913. This compares with 147 per cent in the year ended June 30, 1938. The highest preceding figure was 170 in 1920. The index is an average for beef cattle, hogs, and sheep.

The current index for wheat is 145 per cent of the 1933 period, compared with 140 in the year ended June 30, 1938. The highest for wheat in 18 years, was 164 per cent in 1920. The index for cotton is 106 per cent of the 1913 period, compared with 102 in the year ended June 30, 1938. The highest index for cotton during the period was 176 in 1921.

Advances in current indexes reflect in part the general increases of five per cent in railroad freight rates on agricultural commodities authorized last year by the Interstate Commerce Commission, according to C. C. Matlock of the Bureau. They reflect also, says Mr. Matlock, the fact that "numerous rates which were voluntarily reduced by the carriers during the years of severe depression . . . . were restored in 1938 to levels at or near those regarded as 'normal'."

A comparison is made of indexes of prices of farm products with the freight rates for beef cattle, sheep, hogs, wheat and cotton. It shows that, in relation to 1913 levels, agricultural freight rates are "much higher" this year than farm prices of the commodities on which they apply. The index of prices received for beef cattle is 65 per cent of the index of freight rates on beef cattle, for sheep 52 per cent, hogs 63 per cent, wheat 48 per cent, and cotton 65 per cent.

Mr. Matlock says that the declines in these percentage ratios from 1929 to 1938 "provide evidence of a drastic decline of farm prices since 1929 in relation to corresponding freight rates," that "owing to this relative decline in agricultural commodity prices, freight charges now absorb a materially increased proportion of the destination value of agricultural freight."

Committee Approves Rail Reorganization Bill

The Senate interstate commerce committee has voted to report favorably with amendments S. 1869, the Wheeler-Truman bill, which would drastically amend section 77 of the Bankruptcy Act and create a special railroad reorganization court. Before reporting the bill, details of which were given in the *Railway Age* for March 25, page 534, the committee made several important amendments to meet the criticisms aimed at it during the recent hearings. These amendments deal principally with the standards set up for reorganization plans.

Instead of a court of three as provided in the bill, the committee decided that the special reorganization court should be composed of five members. That section of the bill providing that it shall be rebuttably presumed that the "expectable future average annual earnings" of the property shall not exceed the annual average earnings for the six calendar years preceding the date of the close of hearings in a reorganization case was changed to read that "it shall be rebuttably presumed that the expectable future average annual net railway operating income will not exceed the annual average thereof for the past 12 calendar years". Critics of the measure had objected that the six-year provision was too short a time on which to base the fixed charges for a new capital structure.

In section 9, amending section 77 of the Bankruptcy Act, it is provided that no plan of reorganization shall be approved if it appears on substantial evidence that in the light of the earnings experience of the property included in the assets of the reorganized company and of such changes as may be reasonably expected, the expectable future average annual net railway operating income of any railway operating property so included, plus the expectable future average annual net earnings from other sources, if any, would be insufficient to provide some net earnings applicable to, though not necessarily distributable to every class of securities of the reorganized company under such plan, other than options or warrants to receive or subscribe for securities of the reorganized company. "Net railway operating income" was used in the revision of the bill whereas "earnings" was used in the original bill as introduced. This term was criticized at the hearings on the ground that "earnings" needed to be defined more clearly.

The committee also included a provision to the effect that the reorganization plan should provide for adequate coverage "at

all times" of fixed charges, the quoted words being new.

The bill, as amended, should meet most of the objections of those who are not absolutely opposed to the idea of a reorganization court. It is thought that the bill has a fair chance of passing the Senate, but no predictions can be made at this time as to its prospects in the other chamber.

Willard Asks For Chandler Measure

(*Continued from page 881*)

ment or composition with its creditors by which the principal and interest might either be reduced or postponed for a definite period.

Eugene S. Brooks, a member of the New York bond house of Marshall & Campbell, and chairman of the protective committee of the Central of New Jersey, told the Senators that he saw in the bill a perpetuation of the evils which occurred with controlled roads under section 77 of the Bankruptcy Act. Also, he did not think that the Central of New Jersey would come within the purview of the Chandler bill as now written.

Luther Walter, appearing as counsel for the National Industrial Traffic League, said that, in his opinion, the bill will improve railroad credit. On behalf of the League he urged its passage. Eugene S. Taliaferro, a member of the New York bond house of Joseph Walker & Sons and chairman of the protective committee of the Old Colony, told the committee he favored the passage of the bill, but asked that certain amendments relating to leased lines be included in the final form of the measure. Lucien W. Shaw, an attorney for the United States Treasury Department, favored enactment of the bill, but asked for certain amendments which would more fully protect the Treasury's interests in railroad reorganizations.

The bill should be amended so as to make it clear that existing legal principles of composition will not apply to plans worked out under it, in the opinion of Leslie Craven, attorney for the Railroad Security Owners Association. Mr. Craven favors the bill, but he does not want to limit it to two roads, the B. & O. and the Lehigh Valley, as Senator Wheeler has repeatedly said must be the case if it is to become law. Also, Mr. Craven wanted equity receiverships specifically barred from the scope of the bill.

In reply to a question by Senator Wheeler, Mr. Craven said that "if the bill is good for the B. & O., it is good for other roads similarly situated." In his opinion, a bill limited to two roads would be unconstitutional because of the constitutional restriction which provides that the bankruptcy laws must be uniform.

J. B. Barber, chief of the transportation division of the United States Chamber of Commerce, appeared on behalf of the Transportation Conference of 1939 which was sponsored by the Chamber, and urged the passage of the bill. Senator Wheeler admitted that the Transportation Conference had favored the general principles of the Chandler bill, but he said that the real problem lay in translating the principles into concrete legislation.

No Humane Limit On Truck Hours

(*Continued from page 880*)

lowed that if it had the power to prescribe maximum hours for all motor carrier employees, it likewise had the power and duty to prescribe qualifications for all types of employees. The latter, it adds, would be "a very difficult task, and one wholly foreign to the commission's normal functions . . . it would lead to an unreasonable if not an absurd result."

Disposing of the argument that under the Motor Carrier Act's declaration of policy "to foster sound economic conditions in such transportation and among such carriers in the public interest," the commission, in administering the hours-of-service section, could consider economic and unemployment conditions and sociological factors, the decision says: "There is no indication that the hours of service of employees, when regulated solely with a view to safety of operation, are affected either directly or indirectly by such factors. The provisions of section 202 evince a clear intent of Congress to limit our jurisdiction to regulating the motor carrier industry as a part of the transportation system of the nation. To extend that regulation to features which are not characteristic of transportation nor inherent in that industry strikes us as an enlargement of our jurisdiction, unwarranted by any express or implied provision in the act, which vests in us all the powers we have."

Previously reference had been made to the fact that in the Fair Labor Standards Act Congress fixed the maximum hours and minimum wages, "and did not leave those important questions to an administrative tribunal." Thus the commission cannot believe that Congress intended "by the brief provisions of section 204 . . . to give us the broad power to prescribe qualifications and maximum hours of service for all employees of motor carriers. Further, it is to be noted that neither in the Fair Labor Standards Act nor any other federal or state enactment with which we are familiar, has an administrative body been empowered to prescribe general qualifications for all classes of employees."

The effect of the decision is to leave the commission's hours-of-service regulations applicable only to drivers. Recognizing, however, that activities of other employees may affect safety of operation, the commission suggests that the carriers may file appropriate petitions to bring others in.

Safety Plaques Awarded

"Loyalty of employees is the outstanding factor in producing safety records," W. M. Jeffers, president of the Union Pacific stated in accepting the plaque awarded that road for winning first place in Group A in the railroad employees' national safety contest. The awards were made by D. D. Fennell, president of the National Safety Council, and Lew R. Palmer, secretary of the committee of awards, at Chicago on May 15. Mr. Fennell stated that, during the 16 years since the award was inaugurated, employee deaths have been reduced 5,181 and injuries 783,912. The ten winners were as follows:

Group A—Union Pacific, 2.59 casualties per million man-hours. Accepted by Mr. Jeffers. This railroad has led its group of 15 companies during 11 of the 16 years that the award has been made.

Group B—Pennsylvania (Western Region), 3.82 casualties per million man-hours. Accepted by H. E. Newcomet, vice-president. Despite a uniformly good record in past years, this is the first time the Pennsylvania has won a plaque in these awards.

Group C—Chicago, St. Paul, Minneapolis & Omaha, 3.5 casualties per million man-hours. Accepted by J. C. Yocum, assistant to vice-president. After winning second place last year, this road moved into first place this year, with a total casualty rate almost 30 per cent under its nearest competitor.

Group D—Duluth, Missabe & Iron Range, 0.43 casualties per million man-hours. Accepted by C. E. Carlson, president. This railway not only established an all-time record for Group D, but also turned in the lowest record of any group for 1938.

Group E—Detroit, Toledo & Ironton, 0.44 casualties per million man-hours. Accepted by S. P. Ruddiman, president. This road showed a 91 per cent improvement over the previous year and was a close second to the D. M. & I. R. for the leadership of all groups.

Group F—Lake Superior & Ishpeming, 1.36 casualties per million man-hours. Accepted by A. Syverson, assistant general manager. This road has won the award twice in the last three years.

Group G—Pullman Auxiliary Contest. Chicago Central Zone, 1.21 casualties per million man-hours, and Group H—Pullman Auxiliary Contest. Buffalo shops, 0.68 casualties per million man-hours. Accepted by E. S. Taylor, assistant to vice-president, Pullman Company.

Group A—Switching and Terminal Railroads. Ogden Union. Accepted by R. E. Edens, superintendent.

Group B—Switching and Terminal Railroads. Lake Terminal. Accepted by F. T. Horan, superintendent.

Jersey Still Seeking Turnip Blood

Counsel for five New Jersey carriers submitted a memorandum on May 12 to a committee of the New Jersey state assembly considering a compromise settlement of the railroads' back taxes. A compromise bill has already been passed by the state Senate authorizing acceptance by the state of $14,250,000 in settlement of about $34,000,000 in back taxes owed by the carriers. The basic question in the controversy, according to the memorandum, is: "Can the state of New Jersey by any known means secure from the railroads serving it more tax money than the 14½ million dollars the railroads can pay and offer to pay in addition the 47 million dollars they have already paid to settle

back taxes?" Those who spoke in opposition to the proposed settlement dodged this question, according to the memorandum, and assumed, without proof, that the carriers are able to pay the whole amount of the back taxes levied by the State, amounting to 34¼ million dollars plus interest and penalties amounting to many more millions.

The memorandum, after discussing the major arguments of the opponents of the tax compromise, points out that if the Lehigh Valley, the Lackawanna and the Central of New Jersey follow the Erie and its subsidiaries into bankruptcy by tax judgments which they cannot pay, "the state cannot levy on or sell a single car, locomotive, or any other piece of their properties in the face of injunctions issued by the bankruptcy court." In this connection it calls attention to the fact that the state "cannot by any lawful means collect from bankrupt railroads any sums for taxes, past or future, greater than bankruptcy courts order receivers to pay." It reminds the committee that those roads already in receivership in the state have paid taxes in part from "nothing at all," in the case of the New Jersey & New York, to a maximum of 60 per cent of total assessments, as in the case of the Erie.

The memorandum reviews the facts of the taxation of the Jersey railroads, showing that these levies are out of all proportion to those of other states.

Donald R. Stevens, president, New Jersey Taxpayers' Association, and vice-president and works manager of the Okonite Company, Passaic, N. J., appeared at a hearing before the tax compromise legislative committee on May 4 and delivered a speech in which he urged that the railroads' proposal be accepted. Accused by the Democratic leader of the Assembly of inconsistency in not opposing the railroads' offer, the taxpayers' spokesman replied that he did not believe that the state could collect more than the $14,250,000 from the railroads. He branded as dishonest the charge that the roads are evading their share of the public burden and forcing home-owners into bankruptcy, and described the effect of healthy railroads on employment, purchasing and property values.

Equipment and Supplies

LOCOMOTIVES

THE AKRON, CANTON & YOUNGSTOWN is inquiring for two locomotives of the 2-8-2 type.

FREIGHT CARS

THE BIRMINGHAM SOUTHERN has ordered 100 hopper and 10 flat cars from the Pullman Standard Car Manufacturing Company.

THE CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC has started work in its own shops on the construction of 1,000 box cars and 75 steel caboose cars. This undertaking is part of the company's improvement program reported in the *Railway Age* of February 25.

SIGNALING

ATCHISON, TOPEKA & SANTA FE.—Sealed proposals will be received at the office of the general purchasing agent of this road, Railway Exchange building, Chicago, until 10:00 a. m. (Chicago daylight saving time) June 5, for the furnishing of material necessary for the installation of highway grade crossing protection at Pasadena, Cal., under the federal grade crossing program in the State of California. Separate bids will be received at the same time and place for installation of highway grade crossing protection at San Antonio, New Mexico.

MACHINERY AND TOOLS

THE ILLINOIS CENTRAL has placed an order with Fairbanks Morse & Company for an eighteen section plate Fulcrum individual wheel weighing locomotive scale, with a total capacity of 900,000 lbs., for its Paducah, Ky., shops.

MOTOR VEHICLES

THE MAINE CENTRAL TRANSPORTATION COMPANY has ordered two 37-passenger buses from The a. c. f. Motors Company.

Construction

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.—A contract amounting to approximately $44,900 has been awarded the Northern Bridge Company, Chicago, by the Board of Local Improvements of Chicago for the construction of the superstructure of the Wrightwood avenue subway which will support four tracks of this road. The subway is a 46-ft. span H-beam structure with reinforced concrete abutments of the "A" type, providing for 7-ft. 6-in. sidewalks, and resting on steel-incased cast-in-place concrete piling. The bridge will have a ballast deck on a watertight wrought iron floor welded to the H-beams.

DELAWARE & HUDSON.—A contract has been given to the Spellman & Oliver Company, Chateaugay, N. Y., for the reconstruction of Douglass overcrossing and the elimination of Rockland grade crossing, Douglass, N. Y., to cost about $37,366.

PANHANDLE & SANTA FE.—A contract amounting to $119,510 has been awarded Purvis & Bertram, Ft. Worth, Tex., by the State Highway Department of Texas for the construction of an underpass on Pulliam street in San Angelo, Tex. The bridge, which will cost $90,300, will be a single track, slightly skewed, through-plate girder span 58 ft. 6 in. long on reinforced concrete abutments with spread footings.

Supply Trade

John J. Whittaker, former vice-president in charge of sales, Silvray Lighting, Inc., has been appointed commercial engineer of the **Duro-Test Corporation,** North Bergen, N. J.

Robert A. Neal, assistant to vice-president of the **Westinghouse Electric & Manufacturing Co.,** has been appointed manager of the switchgear division of the company, with headquarters at East Pittsburgh, Pa., Westinghouse Works.

C. H. Kuthe has been appointed technical advisor to the Michigan division of **Revere Copper & Brass, Inc.,** Detroit, Mich. Mr. Kuthe previously served in a sales and sales engineering capacity for the Timken Roller Bearing Company in the Philadelphia, Pa., district.

The Okonite Company, Passaic, N. J., has established an additional district office in the National building, 1404 East Ninth street, Cleveland, Ohio, in charge of **F. J. Dahleiden,** who was previously sales engineer in the Chicago territory for more than a dozen years. Mr. Dahleiden's new duties will also include activity in the public utility and railroad fields.

Charles M. Kirkland has been elected secretary of **The Okonite Company,** Passaic, N. J., and the **Okonite-Callender Cable Company,** Paterson, N. J. After graduating from Harvard, Mr. Kirkland worked in all three of the Okonite plants. During this period, he spent most of his time in development and research work in the four Okonite laboratories. He then entered into active sales work in the Chicago territory and was transferred to New York early in 1939. Mr. Kirkland now has his office at The Okonite Company, 501 Fifth avenue, New York City.

Roy C. Munro, who for the past 14 years has been western sales manager for the **Waugh Equipment Company,** New York, has been elected vice-president, with office as heretofore, at 310 South Michigan avenue, Chicago. Mr. Munro was born in 1884 at Annapolis Royal, Nova Scotia, Canada. In 1905 he moved to Chicago and attended the Armour Institute of Technology. After serving for several years in the mechanical depart-

Roy C. Munro

ment of the Pullman Company, Canadian Car & Foundry Co., and the Atchison, Topeka & Santa Fe, he went with the Union and Southern Pacific System as mechanical assistant in the purchasing department. In 1912, he was appointed a sales representative for the Acme Supply Company, Chicago. Five years later he became associated with the Chicago-Cleveland Car Roofing Company as sales representative and when this organization was sold, he became connected with the Waugh Equipment Company as sales representative. In 1928 he was appointed western sales manager.

OBITUARY

Harold E. Wade, president and chairman of the board of Fairmont Railway Motors, Inc., Fairmont, Minn., died in that city on May 10, after several months illness. He was taken to a hospital on April 16 critically ill with appendicitis which fol-

Harold E. Wade

lowed a month's illness with influenza. Mr. Wade was born at Sheldon, Iowa, on October 4, 1888. He attended the University of Minnesota and later served as assistant cashier of the Fairmont National Bank, of which his father was president. In 1913, Mr. Wade entered the employ of the Fairmont Railway Motors, then the Fairmont Gas Engine & Railway Motor Car Company, as purchasing agent. He served in this capacity until he enlisted in the United States navy on June 28, 1918, as a landsman for the quartermaster of aviation in the U. S. Naval reserve. After training at Dunwoody Institute in Minneapolis, he was transferred to a receiving ship at Philadelphia and embarked by way of Quebec on the U. S. S. Beltana. He served at naval air stations at Killingholme, England, and Brest, France, until he returned to the United States on November 24, 1918. Shortly after his discharge from the navy he returned to Fairmont, and in 1919 was made assistant to his father, then president of Fairmont Railway Motors. He served in this capacity until shortly after his father's death on March 3, 1918, when he was elected president of the company. Mr. Wade took an active part in conservation, the boy scout movement and other civic enterprises. He was mayor of Fairmont from 1925 to 1927 and at the time of his death was president of the Fairmont National Bank.

Financial

BALTIMORE & OHIO.—*Assents to Modification Plan.*—This road reports that holders of 85.7 per cent of outstanding bonds and notes had deposited holdings in assent of the company's plan for modification of interest charges and maturities, as of the close of business on May 16. Assents from holders of individual issues, excluding the R. F. C., varied from 64 per cent to over 93 per cent.

BALTIMORE & OHIO.—*Abandonment by the Indian Creek Valley.*—This company has been granted authority to abandon the operation and the Indian Creek Valley has been authorized by Division 4 of the Interstate Commerce Commission to abandon two branch lines known as (a) the Mill Run branch, extending from Mill Run Junction, Pa., to the end of the line at Mill Run, 1.3 miles, and (b) the Kregar extension, extending from a point near Jones Mills, Pa., to the end of the line at Kregar, 3.9 miles.

BOSTON & ALBANY.—*Abandonment.*—This road and the New York Central, lessee, respectively, have been authorized by the Interstate Commerce Commission, Division 4, to abandon and to abandon operation of the 10.8-mile segment of the B. & A.'s Athol branch, extending from Ludlow, Mass., to Bondsville.

CHICAGO & EASTERN ILLINOIS.—*Reorganization.*—The federal district court at Chicago on May 16 continued until June 5 hearings on the reorganization of the Chicago & Eastern Illinois. Continuance was asked to await the establishment of maximum attorneys' fees by the Interstate Commerce Commission, after which the court will pass on the fee petitions and the reorganization plan.

CHICAGO & NORTH WESTERN.—*Trustee Resigns.*—Charles P. Megan, trustee in bankruptcy of the Chicago & North Western, submitted his resignation to Federal Judge John P. Barnes, on May 9, because of his desire to return to private law practice. Judge Barnes accepted the resignation, which is to take effect May 21, and called a meeting of stockholders and creditors for May 22, to select a successor.

CHICAGO, ST. PAUL, MINNEAPOLIS & OMAHA.—*Abandonment.*—Examiner J. S. Prichard has recommended in a proposed report that the Interstate Commerce Commission's Division 4 grant this road's application for authority to abandon a portion of a branch line extending from Holcombe, Wis., to Hanibal, 17.14 miles.

LEHIGH & NEW ENGLAND.—*Abandonment.*—This road has applied to the Interstate Commerce Commission for authority to abandon its 9.9-mile Nazareth branch, extending from Northampton Junction, Pa., to the Wind Gap.

MINNEAPOLIS & ST. LOUIS.—*Receiver's Certificates.*—The Interstate Commerce Commission, Division 4, has authorized the receiver for this road to issue not exceeding $326,000 of receiver's certificates to renew or extend maturing certificates in like amount. The new issue will bear interest at a rate to be agreed upon, not exceeding four per cent.

NEW YORK, CHICAGO & ST. LOUIS.—*New Chairman of Board Elected.*—George D. Brooke, president of this road, was elected chairman of the board and member of the executive committee, succeeding Robert R. Young, chairman of the Alleghany Corporation. Walter McLucas of Detroit, Mich., was elected to the executive committee to fill a vacancy created by the death of the late Walter L. Ross.

PORT ISABEL & RIO GRANDE.—*R. F. C. Loan Application Withdrawn.*—This road having withdrawn the application, the Interstate Commerce Commission, Division 4, has dismissed the proceeding wherein its approval was sought for a Reconstruction Finance Corporation loan in an original amount of $655,056.75, later reduced by supplemental application to $557,118.

SOUTHERN.—*Purchase of Subsidiary.*—Stockholders of this road at their annual meeting held in Richmond, Va., May 16, voted approval of the purchase of the rights, franchises and property of the Northern Alabama, which transaction is subject to the approval of the Interstate Commerce Commission. The Southern has owned practically all of the outstanding stock of the 94-mile road since May, 1899.

TEXAS & PACIFIC.—*New Directors Elected.*—E. L. Flippen of Dallas, Texas, W. L. Hemingway and S. A. Mitchell of St. Louis, Mo.; R. J. Morfa of New York; A. Temple of Texarkana, Tex.; J. M. Leonard of Fort Worth, Tex.; E. A. Frost of Shreveport, La.; J. W. Beasley and H. L. Laws of Louisiana have been elected directors of this road. They succeed L. P. Ayres, Alva Bradley, M. C. Brush, A. J. Duncan, J. S. Pyeatt, W. W. Reilley, J. K. Walker and William Wyer, and fill one vacancy.

WABASH.—*Receivers' Equipment Trust Certificates.*—The application having been withdrawn, the Interstate Commerce Commission, Division 4, has dismissed the January 24 petition of this road's receivers for authority to assume liability in respect of $7,500,000 of 3½ per cent receivers' equipment-trust certificates.

Average Prices of Stocks and Bonds

	May 16	Last week	Last year
Average price of 20 representative railway stocks..	26.99	28.28	23.52
Average price of 20 representative railway bonds..	57.49	58.43	58.09

Dividends Declared

Chesapeake & Ohio.—50c; Preferred, $1.00, quarterly, both payable July 1 to holders of record June 8.

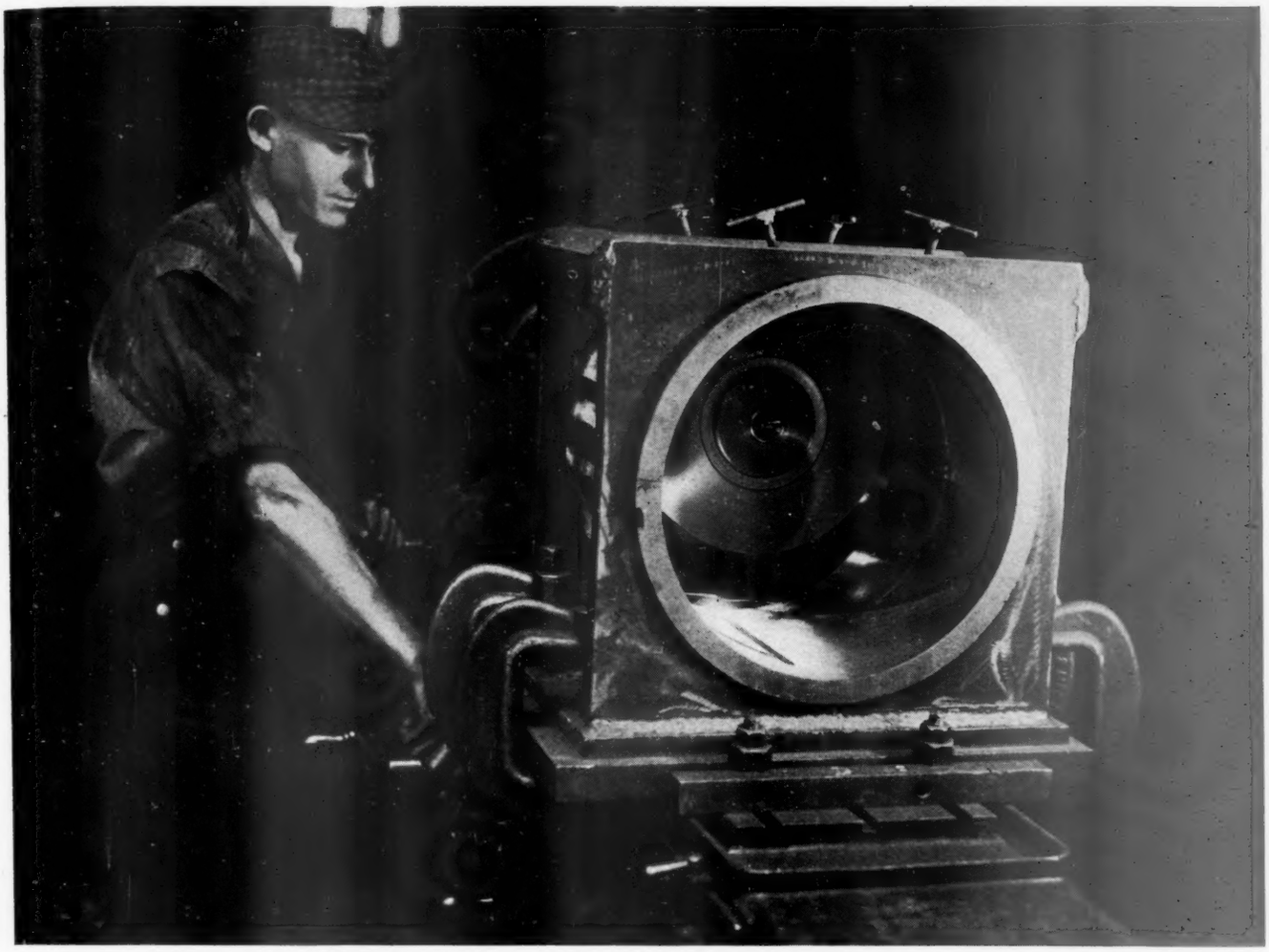
Cincinnati, New Orleans & Texas Pacific.—Preferred, $1.25, quarterly, payable June 1 to holders of record May 15.

Illinois Central.—Leased Lines.—$2.00, semi-annually, payable July 1 to holders of record June 12.

Pittsburgh & Lake Erie.—50c, payable June 15 to holders of record May 19.

Pittsburgh, Bessemer & Lake Erie.—Preferred, 3 per cent, semi-annually, payable June 1 to holders of record May 15.

Continued on next left-hand page



LIMA grinders accurately finishing a driving box

BUILD "low maintenance" into your locomotive

Lima locomotives are designed and built to be money makers. This means not only outstanding road performance, but fewer repairs. The enviable reputation that Lima has earned as a builder of "Money Makers" is based upon the care and precision that go into the manufacture of the component parts of the locomotive. The driving box above, is being ground to a mirror finish on the wearing surfaces, to prepare it for long, trouble-free, "Money Making" service.

LIMA LOCOMOTIVE WORKS LIMA LOCOMOTIVE WORKS INCORPORATED INCORPORATED, LIMA, OHIO

Railway Officers

EXECUTIVE

L. B. Lyman, assistant to the general manager of the Chicago, Burlington & Quincy, has been appointed executive assistant, with headquarters at Denver, Colo. Mr. Lyman formerly held the title of executive assistant at Denver until the position was abolished on April 1, 1938. This position has now been re-established.

J. B. Brantly, whose appointment as assistant vice-president of the Atlantic Coast Line at Wilmington, N. C., was announced in the *Railway Age* of May 13, was born on June 3, 1893, at Macon, Ga. He entered the service of the Atlantic Coast Line in December, 1911, as stenographer in the freight traffic department and was secretary to fourth vice-president from May, 1912, to May, 1915, and from the latter date until August, 1920, served in the office of the assistant general

J. B. Brantly

freight agent at Jacksonville, Fla., as stenographer, trace clerk, rate clerk, and chief clerk. Mr. Brantly then served as commercial agent at Ocala, Fla., until May, 1923, when he was transferred in a similar capacity to Wilmington, N. C. In March, 1926, Mr. Brantly was appointed assistant general freight agent at Wilmington, the position he held until February, 1930, when he became assistant to vice-president, in which capacity he served until his recent appointment as assistant vice-president.

C. L. Persons, assistant chief engineer of the lines East of the Missouri river of the Chicago, Burlington & Quincy, has been promoted to assistant to executive vice-president of the Burlington lines, including the Colorado & Southern, Fort Worth & Denver City and the Wichita Valley, with headquarters as before at Chicago, succeeding to the duties of **John W. Wheeler,** assistant chief engineer, whose resignation on May 11 was announced in the *Railway Age* of May 13. Mr. Persons was born at Wadsworth, Ill., on August 4, 1872, and entered railway service in the engineering corps of the Burlington in 1904, as a topographer, later serving in various other capacities on construction and maintenance work. In 1908, he

C. L. Persons

was promoted to locating engineer, Lines East, with headquarters at Chicago and in 1916, he was appointed assistant engineer, assigned to special work on the chief engineer's staff. Mr. Persons was advanced to assistant chief engineer of lines East of the Missouri river in 1918.

Frank J. Gavin, assistant to the president of the Great Northern, with headquarters at St. Paul, Minn., has been elected executive vice-president, a newly created position with the same headquarters, and the election of a president to succeed the late **William P. Kenney,** has been deferred.

Mr. Gavin was born in 1880 at Alberton, Prince Edward Island, Canada and entered railway service in 1897 as a clerk in the general offices of the Great Northern at St. Paul. Two years later he was transferred to the operating department at Spokane, Wash., and later to Everett, Wash. He returned to Spokane as a timekeeper in 1905, and the following year he was promoted to chief clerk in the division superintendent's office at that point. Mr. Gavin was advanced to trainmaster

Frank J. Gavin

of the Spokane and Kalispell divisions in 1911, and to superintendent of the Spokane division in 1916. In 1917, he was further advanced to assistant general superintendent of the Western district and one year later he was promoted to general superintendent of that district, with headquarters at Seattle, Wash. In the fall of 1919, he was transferred to Superior, Wis., and later his headquarters were changed to Duluth, Minn. In 1928, he was appointed assistant general manager of the lines East of Williston, N. D., with headquarters at Duluth, and on June 15, 1929, he was advanced to general manager of those lines, with the same headquarters. Mr. Gavin was appointed assistant to the president, with headquarters at St. Paul, in July, 1936, and held that position until his recent promotion.

FINANCIAL, LEGAL AND ACCOUNTING

W. S. Jones, treasurer of the Prescott & Northwestern, with headquarters at Prescott, Ark., has been elected secretary and treasurer, with the same headquarters.

Walter N. Davis, whose promotion to general attorney of the Terminal Railroad Association of St. Louis was announced in the *Railway Age* of May 6,

Walter N. Davis

was born at St. Louis, Mo., on November 29, 1876, and graduated from Vanderbilt University in 1898, and from the Law College of Washington University in 1900. Thereafter he engaged in the general practice of law and from 1903 to 1912 he was a member of the firm of Blodgett & Davis in St. Louis, who were at that time local attorneys for the Wabash. On September 15, 1917, he was appointed assistant to the United States District Attorney at St. Louis assigned to duties in connection with the World War. On June 1, 1923, he became Commissioner of the St. Louis Court of Appeals and on January 1, 1927, he was appointed commissioner of the Supreme court of Missouri. Mr. Davis entered railroad service again on April 1, 1931, when he became associated with the legal department of the Terminal Railroad Association of St. Louis, later being advanced to attorney. His promotion to general attorney was effective May 1.

H. W. Passenger, chief payroll clerk in the accounting department of the Alton

Continued on next left-hand page

at Chicago, has been promoted to paymaster, with the same headquarters, succeeding **C. L. Rohde,** who has resigned.

E. M. Grady, chief clerk of the Manufacturers Junction Railway at Cicero, Ill., has been promoted to auditor and assistant secretary, with the same headquarters, succeeding **George Mitchell,** whose death on April 16, was announced in the *Railway Age* of April 15.

A. W. Latham, auditor of the New York, Chicago & St. Louis (Nickel Plate), with headquarters at Cleveland, Ohio, has been promoted to general auditor, with the same headquarters, a newly created position, and **H. L. Lehmkuhle,** assistant auditor at Cleveland, has been advanced to auditor at that point, succeeding Mr. Latham. **Lewis A. Bell,** assistant comptroller, with headquarters at Cleveland, has resigned and the positions of assistant comptroller and assistant auditor have been abolished.

TRAFFIC

B. J. Webb has been appointed general agent for the Litchfield & Madison at Louisville, Ky., a newly created position.

R. S. Nelson, acting general passenger agent on the Missouri Pacific at Palestine, Tex., has been promoted to general passenger agent at that point.

J. H. Thomas has been appointed assistant general freight and passenger agent of the Prescott & Northwestern, with headquarters at Prescott, Ark.

M. A. Williams, traveling freight agent for the Great Northern at Des Moines, Iowa, has been promoted to general agent, freight department at that point, a change in title.

H. F. Eno, chief clerk to the general traffic manager of the Denver & Rio Grande Western, at Denver, Colo., has been promoted to general passenger agent, with headquarters at Denver, a newly created position.

F. L. Coulter, general agent for the St. Louis-San Francisco at Boston, Mass., has been promoted to assistant to general traffic manager, with headquarters at St. Louis, Mo., a newly created position, and **R. E. Preble** has been appointed general agent at Boston, replacing Mr. Coulter.

G. A. Sherwood, assistant general freight agent on the Minneapolis, St. Paul & Sault Ste. Marie at Duluth, Minn., has retired and **E. A. Olson** has been appointed district freight agent at that point. The position of assistant general freight agent at Duluth has been abolished.

P. K. Yonge, county agent of Delta County, Colorado, with headquarters at Delta, Colo., has been appointed general agent and agriculturist for the Denver & Rio Grande Western at Grand Junction, Colo., succeeding **N. J. Browne,** general agent at that point, who has retired.

C. B. Kerr, chief of tariff bureau of the Minneapolis & St. Louis, with headquarters at Minneapolis, Minn., has been promoted to assistant general freight agent in charge of rates and divisions, with the same headquarters, and **J. A. Swanson** has been appointed chief of tariff bureau succeeding Mr. Kerr.

Lloyd W. Baker, industrial agent, Baltimore & Ohio, with headquarters at Cincinnati, Ohio, has been appointed division freight agent at Indianapolis, Ind., succeeding the late **P. M. Havens. Stanley A. Temple,** industrial engineer, with headquarters at Baltimore, Md., has been appointed industrial agent at Cincinnati, to succeed Mr. Baker.

W. T. Price, general freight and passenger agent on the Union Pacific, with headquarters at Denver, Colo., has been promoted to assistant traffic manager, with the same headquarters, a newly created position, and **K. G. Carlson,** assistant general freight agent at Omaha, Neb., has been advanced to general freight agent, with headquarters at Denver, also a newly created position. **J. L. Totten,** who was on leave of absence because of illness, has returned to his former position as general agent, freight department, at San Francisco, Cal., relieving **B. C. Crook,** acting general agent, freight department at that point.

Burt L. Gartside, assistant general passenger agent on the Chicago, Burlington & Quincy, with headquarters at Chicago, has been promoted to general passenger agent in charge of solicitation at that point, a newly created position, and **Calvin J. Rohwitz,** general freight and passenger agent at Omaha, Neb., has been advanced to assistant freight traffic manager, with the same headquarters, a newly created position. **T. P. Hinchcliff,** assistant general passenger agent at Omaha, has been promoted to general passenger agent at that point, succeeding to a portion of the duties of Mr. Rohwitz and **Fred W. Johnson,** general agent, passenger department at Denver, Colo., has been advanced to general passenger agent at that point, a newly created position. **Ben W. Wilson,** district passenger agent at St. Paul, Minn., has been promoted to assistant general passenger agent at that point, also a new position.

James L. Lumsden, general traffic agent of the Illinois Central, with headquarters at Chicago, has been promoted to general coal agent, with the same headquarters, a newly created position, and **T. J. Prendergast,** general agent in charge of mail, express and merchandise traffic at Chicago, has been promoted to general traffic agent succeeding Mr. Lumsden. **W. F. Donovan,** city freight agent at Chicago, has been promoted to general agent in charge of mail, express and merchandise traffic at that point, replacing Mr. Prendergast. **E. B. Rock, Jr.,** general southeastern agent, with headquarters at Atlanta, Ga., has been advanced to general traffic agent, with headquarters at Birmingham, Ala., relieving **Ernest J. Carr,** whose promotion to assistant traffic manager at St. Louis, Mo., was announced in the *Railway Age* of April 22, and **M. L. Corbett,** general agent at Jacksonville, Fla., has been appointed general agent at Atlanta, Ga., succeeding to the duties of Mr. Rock. **P. A. Webb, Jr.,** district traffic agent at Miami, Fla., has been promoted to general agent at Jacksonville, replacing Mr. Corbett.

Henry James Freeman, freight claim agent of the Pennsylvania, whose retirement on April 30 was noted in the *Railway Age* of May 6, was born at Philadelphia, Pa., on April 30, 1874, and was educated in the public schools of that city. Mr. Freeman entered the service of the Pennsylvania as a clerk in the office of the freight agent at Kensington (Philadelphia) on January 8, 1895. After serving in various capacities in that office he was transferred to the general freight office on July 15, 1903. He was appointed special agent in the freight claim agent's office on January 1, 1907, and was promoted to chief clerk to the freight claim agent on May 8, 1912. In April, 1919, Mr. Freeman was assigned to the office of the manager, Claims and Property Protection Section, United States Railroad Administration, Washington, D. C., where he remained until the termination of federal control on March 1, 1920, when he resumed his duties as chief clerk to the freight claim agent, Pennsylvania system, at Philadelphia. On April 1, 1925, he was appointed assistant freight claim agent at Philadelphia and on October 1, 1925, was promoted to freight claim agent, the position he held until his retirement.

James Morrison Horn, assistant freight traffic manager, Canadian National, with headquarters at Winnipeg, Man., has been appointed traffic manager, foreign freight department, with headquarters at Montreal, Que., succeeding **R. J. Foreman,** whose appointment as general freight traffic manager of the company was reported in the *Railway Age* of March 25.

James M. Horn

Mr. Horn was born at Allanton Mill, County Lanark, Scotland, on April 12, 1880, and commenced his railway career with the old Northern Pacific & Manitoba as clerk at Winnipeg in 1898. After almost two years with this company he joined the staff of the Canadian Northern at Winnipeg in 1901 where he was promoted from junior positions to city freight agent in 1904 and contracting freight agent in 1908. The following year he went to Edmonton, Alta., as division freight agent

Continued on next left-hand page

NO. 89 OF A SERIES OF FAMOUS ARCHES OF THE WORLD

WELWYN VIADUCT

ENGLAND

This 1557 ft. brick viaduct, situated immediately south of Welwyn Station on the London & North Eastern Railway, carries the main line from King's Cross Station, London, to Edinburgh, over the valley of the River Mimram. The viaduct consists of forty arches, each with a clear span of thirty ft. The maximum height of the double line of railway, which is laid in 90 ft. rails to reduce the number of joints on the structure, is 100 ft. « « « The Security Sectional Arch for the locomotive firebox was designed and developed to further the economy and effectiveness of the steam locomotive. But only when your locomotive is equipped with a *complete* arch can you realize true arch efficiency.

THERE'S MORE TO SECURITY ARCHES THAN JUST BRICK

HARBISON-WALKER REFRACTORIES CO.

Refractory Specialists

AMERICAN ARCH CO.
INCORPORATED
60 EAST 42nd STREET, NEW YORK, N. Y.
Locomotive Combustion Specialists

and to Winnipeg in 1916 as assistant general freight agent, becoming general freight agent there in 1919. He was transferred to Vancouver in 1921 to take a similar position with the Canadian National and in 1929 returned to Winnipeg as assistant freight traffic manager, which position he held until his recent appointment.

OPERATING

F. C. Mansfield, chief dispatcher of the Missouri & Arkansas at Harrison, Ark., has been appointed trainmaster with the same headquarters.

George W. Sears, yardmaster on the Atchison, Topeka & Santa Fe at Corwith, Ill., has been promoted to trainmaster of the Chicago Terminal division, with the same headquarters, a newly created position.

Merle J. Reynolds, supervisor of terminal operation of the Baltimore & Ohio Chicago Terminal, Chicago, has been promoted to supervisor of station service of the Baltimore & Ohio System, with headquarters at Baltimore, Ohio, a newly created position.

P. M. Scott, in charge of personnel, on the staff of the executive vice-president, of the Chicago, Burlington & Quincy, at Chicago, has been promoted to assistant superintendent of dining car service, with headquarters at Chicago, a newly created position.

C. W. Graebing, auditor of the Rio Grande Southern, with headquarters at Denver, Colo., has been promoted to general manager and auditor, with the same headquarters, and **O. B. Olson,** has been appointed superintendent of transportation and trainmaster, with headquarters at Ridgway, Colo.

J. P. Polk, assistant director of personnel on the Louisville & Nashville, with headquarters at Louisville, Ky., has been appointed superintendent of the Nashville Terminals of the L. & N. and the Nashville, Chattanooga & St. Louis, with headquarters at Nashville, Tenn., succeeding **Leland G. Waldrop,** who has retired.

Mr. Waldrop was born in Alabama on November 7, 1873, and attended Southern University. He entered railway service in 1889 as a telegraph operator on the L. & N., later being successively promoted to agent, dispatcher, general agent, assistant superintendent and superintendent of the Nashville Terminals.

Paul Whitman Neff, whose appointment as superintendent of the Monongahela division of the Pennsylvania, with headquarters at Pittsburgh, Pa., was noted in the *Railway Age* of May 6, was born at Richmond, Ind., on February 13, 1896. After finishing his education at the grade and high schools of Richmond he entered the employ of the Pennsylvania on April 24, 1917, as a yard brakeman on the Richmond division, at Richmond, Ind., which position he held until August 7, 1919, when he became yard conductor, with the same headquarters. On November 24, 1927, he was assigned to special duty in the office of the general superintendent of transportation at Chicago, where he remained until February 20, 1928, when he

Paul W. Neff

returned to his previous position at Richmond, Ind. Mr. Neff was appointed acting assistant yardmaster of the Fort Wayne division, with headquarters at Crestline, Ohio, on April 16, 1928, and on August 1 of the same year he became assistant yardmaster of the Grand Rapids division at Grand Rapids, Mich., being promoted to yardmaster on September 1, 1928. Mr. Neff was appointed acting assistant trainmaster of the St. Louis division on February 1, 1934; assistant trainmaster of the Philadelphia division on December 1, 1934; and trainmaster of the Wilkes-Barre division on November 21, 1935. He was transferred in the same capacity to the Cincinnati division on January 16, 1937, and to the Columbus division on April 20, 1938, where he remained until his recent appointment as division superintendent.

E. P. Stine, assistant superintendent of the Creston division of the Chicago, Burlington & Quincy, with headquarters at Creston, Iowa, has been promoted to assistant to general manager at Chicago, succeeding **L. B. Lyman,** whose promotion to executive assistant at Denver, Colo., is announced elsewhere in these columns and **E. L. Potarf** has been advanced to assistant superintendent of the Alliance-Sterling division, with headquarters at Sterling, Colo., replacing **A. F. McKelvie,** who has been transferred to Creston, relieving Mr. Stine.

ENGINEERING AND SIGNALING

Richard Murphy, roadmaster of the Rio Grande Southern, with headquarters at Rico, Colo., has been appointed superintendent of maintenance and roadmaster, with headquarters at Durango, Colo.

Thomas Jason Engle, estimator in the chief engineer's office of the Chicago, Rock Island & Pacific at Chicago, has been promoted to assistant engineer of buildings with the same headquarters, succeeding **T. D. Frederick,** who resigned in October, 1938.

G. A. Haggander, bridge engineer of the Burlington Lines, with headquarters at Chicago, has been promoted to assistant chief engineer of lines East of the Missouri river of the Chicago, Burlington & Quincy, with the same headquarters, succeeding **C. L. Persons,** whose promotion to assistant to executive vice-president is announced elsewhere in these columns, and **R. W. Willis,** assistant engineer at Chicago, has been advanced to principal assistant engineer, with the same headquarters. **F. H. Cramer,** assistant bridge engineer at Chicago, has been promoted to bridge engineer, replacing Mr. Haggander and **M. L. Johnson,** office engineer to the assistant bridge engineer at Chicago, has been advanced to assistant bridge engineer, relieving Mr. Cramer. **R. L. Sims,** district engineer of maintenance of way, with headquarters at Galesburg, Ill., has been transferred to Omaha, Neb., succeeding **E. L. Potarf,** whose promotion to assistant superintendent is announced elsewhere in these columns, and **E. J. Brown,** roadmaster with headquarters at Chicago, has been advanced to district engineer of maintenance of way at Galesburg, replacing Mr. Sims.

J. C. Aker, whose promotion to assistant chief engineer of the Nashville, Chattanooga & St. Louis, with headquarters at Nashville, Tenn., was announced in the *Railway Age* of May 13, was born at Delaware City, Del., on March 9, 1889, and graduated from the University of Delaware in 1908. He entered railway service in the engineering corps of the Louisville & Nashville on March 10, 1910, and served in various capacities on construction work in Kentucky, Tennessee and Alabama. On October 1, 1915, he went with the N. C. & St. L. as a resident engineer on the construction of various grade revision projects. During the war he joined the U. S. Army as a private in the engineering corps, serving with the 211th regiment of Engineers and was later commissioned a second lieutenant. He returned to the N. C. & St. L. in February, 1919, as assistant engineer in the valuation and real estate department. Mr. Aker was transferred to the maintenance of way department and assigned to the bridge department in 1923. In 1927, he was assigned to the chief engineer's office as assistant engineer in connection with tie and timber treatment, maintenance expenditures and various other duties.

PURCHASES AND STORES

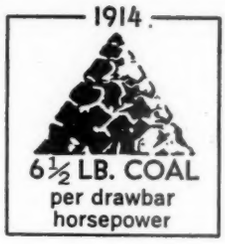
J. M. Paulus, chief clerk in the office of the purchasing agent of the Nashville, Chattanooga & St. Louis at Nashville, Tenn., has been promoted to general storekeeper, with the same headquarters, succeeding to the duties of **J. G. Breene,** storekeeper, who retired on May 15.

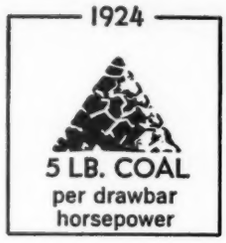
OBITUARY

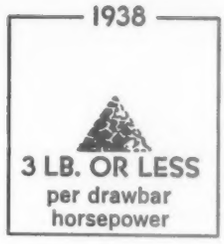
J. D. Bain, general agent on the Chicago & Eastern Illinois at Chicago, died on May 10 at the age of 69.

John J. O'Brien, who retired on July 1, 1937, as superintendent of the car department of the Terminal Railroad Association of St. Louis, died on May 5 at the Missouri Pacific hospital in St. Louis, Mo., following a short illness.

Table of Operating Revenues and Expenses Appears on next left-hand page







Locomotive Fuel Consumption

Constant improvement in the steam locomotive has brought about a considerable reduction in its fuel consumption for the same power output. The illustrations graphically show the extent of the reduction.

The economy in fuel consumption is largely the result of applications of fuel saving equipment such as Elesco superheaters and feedwater heating devices.

Operating Revenues and Operating Expenses of Class I Steam Railways

Compiled from 136 Monthly Reports of Revenues and Expenses Representing 140 Class I Steam Railways

(Switching and Terminal Companies Not Included)

FOR THE MONTH OF MARCH, 1939 AND 1938

Item	United States		Eastern District		Southern District		Western District	
	1939	1938	1939	1938	1939	1938	1939	1938
Miles of road operated at close of month	233,624	234,761	57,613	57,984	44,492	44,719	131,519	132,058
Revenues:								
Freight	$257,468,679	$227,069,747	$109,252,182	$90,842,441	$54,015,346	$47,551,329	$94,201,151	$88,675,977
Passenger	31,200,519	30,996,842	16,801,565	16,648,013	5,505,111	5,414,096	8,893,843	8,934,733
Mail	8,378,181	8,082,877	3,258,852	3,116,618	1,455,933	1,403,800	3,663,396	3,562,459
Express	5,491,370	4,792,654	2,257,855	1,874,305	1,304,014	1,202,669	1,929,501	1,715,680
All other operating revenues	12,552,269	12,075,854	6,183,646	6,108,392	1,825,246	1,706,349	4,543,377	4,261,113
Railway operating revenues	315,091,018	283,017,974	137,754,100	118,589,769	64,105,650	57,278,243	113,231,268	107,149,962
Expenses:								
Maintenance of way and structures	34,675,290	32,216,884	13,432,558	11,826,186	6,932,554	6,592,902	14,310,178	13,797,796
Maintenance of equipment	65,159,440	57,929,168	28,528,744	24,159,238	12,512,570	11,328,163	24,118,126	22,441,767
Traffic	8,791,950	8,575,579	3,172,664	3,071,642	1,700,783	1,656,907	3,918,503	3,847,030
Transportation—Rail line	117,735,927	115,903,604	53,188,662	51,033,648	20,640,354	20,307,051	43,906,911	44,562,905
Transportation—Water line	436,132	444,140	.....	.....	.....	.....	436,132	444,140
Miscellaneous operations	2,982,072	3,102,259	1,239,974	1,343,669	512,619	498,763	1,229,479	1,259,827
General	10,854,164	11,048,660	4,349,740	4,378,310	2,069,526	2,137,880	4,434,898	4,532,470
Transportation for investment—Cr.	276,194	216,179	22,971	30,366	44,953	55,266	208,270	130,547
Railway operating expenses	240,358,781	229,004,115	103,889,371	95,782,327	44,323,453	42,466,400	92,145,957	90,755,388
Net revenue from railway operations	74,732,237	54,013,859	33,864,729	22,807,442	19,782,197	14,811,843	21,085,311	16,394,574
Railway tax accruals	29,470,939	28,378,264	12,542,503	11,972,682	6,204,113	5,725,608	10,724,323	10,679,974
Railway operating income	45,261,298	25,635,595	21,322,226	10,834,760	13,578,084	9,086,235	10,360,988	5,714,600
Equipment rents—Dr. balance	8,025,431	7,852,108	3,371,900	3,102,037	802,347	977,817	3,851,184	3,772,254
Joint facility rent—Dr. balance	2,918,978	3,055,212	1,625,423	1,726,392	289,732	300,125	1,003,823	1,028,695
Net railway operating income	34,316,889	14,728,275	16,324,903	6,006,331	12,486,005	7,808,293	5,505,981	913,651
Ratio of expenses to revenues (per cent)	76.3	80.9	75.4	80.8	69.1	74.1	81.4	84.7
Depreciation included in operating expenses	16,894,482	16,880,765	7,404,776	7,383,016	3,331,065	3,295,401	6,158,641	6,202,348
Pay roll taxes	8,760,117	8,369,935	3,769,892	3,503,689	1,599,710	1,541,437	3,390,515	3,324,809
All other taxes	20,710,822	20,008,329	8,772,611	8,468,993	4,604,403	4,184,171	7,333,808	7,355,165

FOR THREE MONTHS ENDED WITH MARCH, 1939 AND 1938

Miles of road operated at close of month*	233,720	234,803	57,630	57,999	44,511	44,719	131,579	132,085
Revenues:								
Freight	$729,100,310	$643,749,212	$310,418,395	$257,631,933	$154,931,722	$136,573,252	$263,750,193	$249,544,027
Passenger	96,212,662	99,678,806	52,759,051	53,838,804	16,172,554	17,018,767	27,281,057	28,821,235
Mail	23,673,380	23,165,598	9,082,889	8,819,341	4,165,747	4,095,923	10,424,744	10,250,334
Express	11,796,346	9,932,082	4,469,515	3,268,992	2,975,278	2,460,480	4,351,553	4,202,610
All other operating revenues	36,991,422	36,637,674	18,411,401	18,181,337	5,177,776	5,154,177	13,402,245	13,302,160
Railway operating revenues	897,774,120	813,163,372	395,141,251	341,740,407	183,423,077	165,302,599	319,209,792	306,120,366
Expenses:								
Maintenance of way and structures	96,648,415	92,109,260	38,106,015	35,182,433	19,948,880	19,022,205	38,593,520	37,904,622
Maintenance of equipment	186,226,259	170,970,472	81,458,373	71,299,512	36,076,867	33,271,611	68,691,019	66,399,349
Traffic	25,764,560	25,842,079	9,216,106	9,267,665	5,129,055	5,160,417	11,419,399	11,413,997
Transportation—Rail line	343,546,561	344,696,302	155,496,437	152,466,716	60,056,372	59,915,487	127,993,752	132,314,099
Transportation—Water line	1,183,143	1,264,870	.....	.....	.....	.....	1,183,143	1,264,870
Miscellaneous operations	9,011,799	9,663,242	3,913,258	4,302,453	1,486,139	1,506,597	3,612,402	3,854,192
General	32,145,170	32,926,353	12,940,736	13,031,965	6,069,240	6,324,624	13,135,194	13,569,764
Transportation for investment—Cr.	600,745	549,205	51,987	83,534	118,489	118,390	430,269	347,281
Railway operating expenses	693,925,162	676,923,373	301,078,938	285,467,210	128,648,064	125,082,551	264,198,160	266,373,612
Net revenue from railway operations	203,848,958	136,239,999	94,062,313	56,273,197	54,775,013	40,220,048	55,011,632	39,746,754
Railway tax accruals	86,240,716	84,244,272	36,100,373	34,851,204	18,430,530	17,343,837	31,709,813	32,049,231
Railway operating income	117,608,242	51,995,727	57,961,940	21,421,993	36,344,483	22,876,211	23,301,819	7,697,523
Equipment rents—Dr. balance	23,101,121	22,951,684	10,255,742	9,526,889	1,850,943	2,009,093	10,994,436	11,415,702
Joint facility rent—Dr. balance	8,698,778	9,080,865	4,717,114	4,955,428	959,624	960,119	3,022,040	3,165,318
Net railway operating income	85,808,343	19,963,178	42,989,084	6,939,676	33,533,916	19,906,999	9,285,343	†6,883,497
Ratio of expenses to revenues (per cent)	77.3	83.2	76.2	83.5	70.1	75.7	82.8	87.0
Depreciation included in operating expenses	50,422,814	50,335,177	21,948,777	21,913,936	9,981,054	9,831,359	18,492,983	18,589,882
Pay roll taxes	25,213,401	24,735,416	10,920,031	10,489,208	4,588,174	4,513,923	9,705,196	9,732,285
All other taxes	61,027,315	59,508,856	25,180,342	24,361,996	13,842,356	12,829,914	22,004,617	22,316,946

* Represents an average of the mileage reported at the close of each month within the period.

† Deficit or other reverse items.

Compiled by the Bureau of Statistics, Interstate Commerce Commission. Subject to revision.